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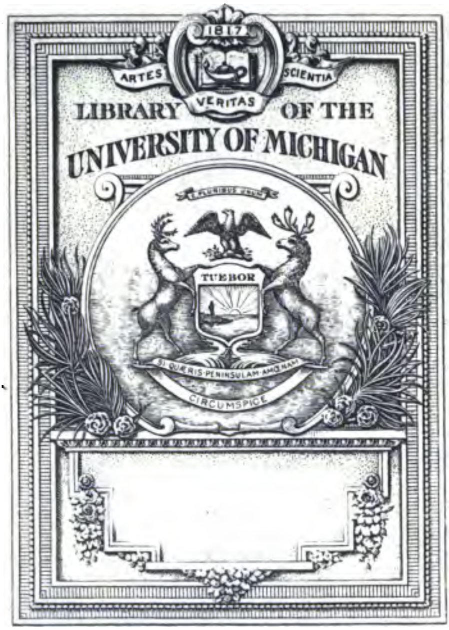

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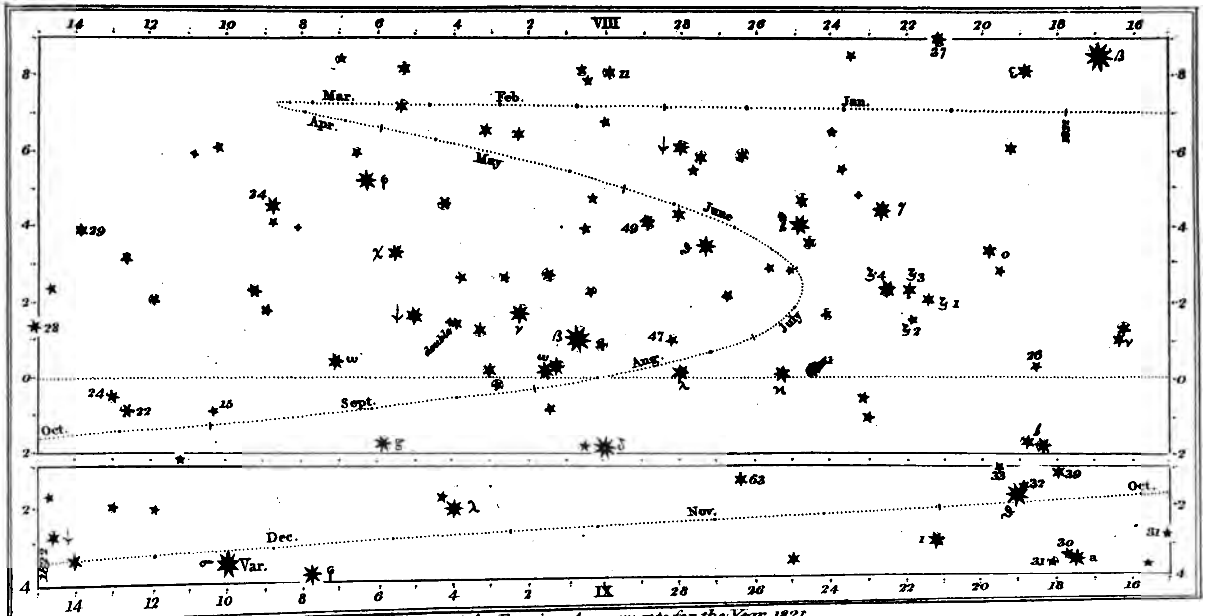

Engraved for Evening Amusements for the Year 1821.

EVENING AMUSEMENTS;

OR, THE

BEAUTY OF THE HEAVENS

DISPLAYED.

IN WHICH

SEVERAL STRIKING APPEARANCES,

TO BE OBSERVED ON VARIOUS EVENINGS IN THE

HEAVENS,

DURING THE YEAR

1821,

ARE DESCRIBED.

TO BE CONTINUED ANNUALLY.

BY WILLIAM FREND, ESQ. M.A.

ACTUARY TO THE ROCK LIFE ASSURANCE COMPANY, AND LATE FELLOW
OF JESUS COLLEGE, CAMBRIDGE; AUTHOR OF PRINCIPLES
OF ALGEBRA, TANGIBLE ARITHMETIC, ESSAY
ON PATRIOTISM, ETC.

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ADVERTISEMENT.

The path of the Planet Ceres is delineated in the Plate on a small scale, suited to this volume; but for a complete knowledge of the telescopick stars in her course, the Reader is referred to the Memoir at the end of the volume, in which materials are supplied for the most scientifick observer, by the industry and talents of Mr. Woolgar, of Lewes, to whom the Author is happy in acknowledging himself indebted for this improvement of his Work.

EVENING AMUSEMENTS;

OR, THE

BEAUTY OF THE HEAVENS DISPLAYED.

TO THE READER.

THE object of my little Work is, as I have often observed, to familiarize the view of the heavens to the commonest observer; to teach him to mark appearances as they daily arise; to show him, that very little is necessary on his part to render the objects in the regions above him as distinguishable as the houses, churches, and roads about his habitation. But it is not so easy to make every reader believe this. I am continually told, What a number of stars there is in the heavens! and how is one to be known from the other? Certainly they cannot, if the observer will take no pains to fix what he sees on his memory. Yet there are many groupes, that cannot fail to make an impression; and that some have done this is evident, from the familiar expressions by which they are known to a great mass of the community.

Thus the seven stars of the Northern Bear, being seen every night in this country, are known to multitudes, who, with a little attention, might discover groupes as distinctly marked. Charles's Waggon, or Wain, is in the mouth of many a waggoner, who finds out his time by it as well as the Carrier in Shakspeare. "An't be not four in the morning, I'll be hang'd: Charles's Wain is over the new chimney, and yet our horse not pack'd." From Charles's Wain the Lesser Bear is easily discoverable; and two stars in the former have gained the name of the pointers, as by drawing a line through them upwards it leads us to the north polar star, which with other six stars near to it make a figure so much resembling the seven stars of the Great Bear, that when once learned they cannot easily be effaced from the memory.

In the same manner smaller groupes may be easily pointed out: as for example, the four small stars in the Dolphin; the four stars in the Urn, three of them forming the points of a triangle, and one nearly in the middle of it; the Northern Crown, from its bright gem and smaller stars with it forming a figure like a crown. These are groupes, which when once known are not likely to be soon forgotten. It is not necessary, that the groupes should consist of the brighter stars. The smaller ones, from their positions, will be as easily known; and it is by observing a few groupes in different parts, that the intervening stars between them may be easily discovered.

But it is in vain, that plain directions are given, if an observer will not take some pains, which are indeed trifling, to make the directions easy to him. The best time, in general, of making a group familiar is, when it is on the meridian; but then the observer must have previously known how to fix his eye towards that quarter. This surely cannot be esteemed difficult, as he has nothing to do but in the day time to stand by a window in his house, into which the Sun shines at noon, and to recollect at night in what position he stood when he looked towards the Sun. By keeping his face in that direction, and looking upwards and downwards, he cannot fail of discovering the group stated to be on the meridian at that time. If the group should be in the northern part of the hemisphere, he first fixes his eye on the polar star, and then, moving it upwards and downwards, he will in the same manner find the group stated to be in that direction.

If the groupes, or any particular star of the first or second magnitude, are to be discovered when they are not on the meridian, the process is similar; but the observer must previously have made himself tolerably well acquainted with the points of the compass. This I have shown to be not very difficult: for having discovered the north and south points, by either the Sun at mid-day or the polar star at night, the eastern and western are plain, from being each in the middle between them; and the middle points between the adjoining two, the north-east, north-west, south-east, and south-west, will be easily marked out in any room, or in an open space. Accuracy is by no means requisite. The groupes, or bright star, are generally so easily discovered, by turning the face near to the quarter pointed out, that it is not necessary to attend much to the smaller divisions of the compass. It is scarcely ever necessary to notice more than that the group is to the north or south, or east or west, of one of the eight points above mentioned.

It was with a view to facilitate the knowledge of the stars, by observing them at peculiar hours, that I drew up, in the year 1806, descriptions of their positions at those times. I also particularly recommended to my readers to be careful of their books, as there would be continually references to them. I have since had of late several applications for the volume for 1806. As it is out of print, and as the directions there given are referred to in this volume, I have thought it right to print another edition of that for 1806, which will be ready for delivery at the same time with this volume. The usual references are made to it in the following pages; and by it, at any hour of the night, the chief stars in the heavens are to be discovered.

At the end of each month a reference is made to the positions, as they are termed in the volume for 1806. Of these, twelve are described at the end of that book, each of them having some particular star or group on the meridian at a particular time. On any day, then, when we wish to discover any star, that we have heard of, or which, having observed, we do not know, we look to the table of positions at the end of the month. In this, under the day of the month, in the first line, is seen the hour, at which we should examine the heavens, and in the first column, in a line with that hour are marked the numbers I, II, III, &c., to refer us to the first, second, and third positions in the volume for 1806. We then look to the volume for that position, and, turning our eyes to the south, by carrying them up and down on the meridian, we shall easily discover the star or group upon it, which is the key to the position. If we are in an open space, with a good command of the heavens, we can then turn our eyes round to different quarters, and shall there find with ease the stars pointed out to us. A little practice will make this very easy; and my readers, who are accustomed to it, will do well to assist their friends; and they will forgive me for repeating here, what I have so often observed in other places, as this volume may fall into the hands of some, who have either not attended to previous directions, or for the first time taken up this volume, as a guide to them to the objects in the heavens, in which we will now proceed to notice the appearances for the month of January.

JANUARY, 1821.

THE Moon's latitude, on the 1st, at midnight, is five degrees two minutes and three quarters south, in the fourteenth degree of the ninth sign; and it decreases to the 8th, when she passes the ecliptick in her ascending node, between two and three in the afternoon, in the seventeenth degree of the twelfth sign. Her northern latitude now increases to the 14th, when it is at midnight five degrees six minutes, in the fifteenth degree of the third sign; and it then decreases to the 22d, when she passes the ecliptick in her descending node, about two in the morning, in the fifteenth degree of the sixth sign. Her southern latitude then increases to the 29th, when it is, at noon, nearly five degrees twelve minutes, in the fifteenth degree of the ninth sign; and it decreases to the end of the month, being, at midnight of the last day, four degrees eighteen minutes, in the nineteenth degree of the tenth sign. There will not, for obvious reasons, be an eclipse at either passage over the eclipтick.

The new Moon takes place on the 4th, at twelve minutes past six in the morning, but from her great southern latitude without an eclipse; and on the 5th her crescent will be seen soon after Sun-set in the south-west, near the horizon, having passed the line drawn through the two first stars of the Goat and produced. On the 6th, she is seen near to but to the west of the four small stars in the tail of the Goat, passing the two uppermost about Moon-set, and directing her course to Jupiter, at some distance to the east of her. On the 7th, she passes under the four small stars in triangle of the Urn, Jupiter being so near to her, that her motion being now rapid she will overtake him by next day. On the 8th, she is seen at first to the west of Jupiter, but we shall observe her during her course passing above him, as he is south of the ecliptick, and she has lately passed it in her ascending node. She directs her course to Saturn, at some distance from her to the east.

On the 9th, the Moon is on the meridian at thirty-eight minutes past four in the afternoon, being almost in a line with the two eastern of the four stars in square above her, Jupiter being below her to the west, and Saturn nearer to her to the east. On the 10th, she is on the meridian at twenty-six minutes past five, Saturn being now below her to the west; and the rapidity of her motion will be noticed by her progress from these two planets. On the 11th, she is on the meridian at a quarter past six, being under the three first stars of the Ram, but nearest to the two smaller ones, and she is directing her course to the Pleiades. On the 12th, she is on the meridian at six minutes past seven, being about midway between the Pleiades to the east of her, and the three first stars of the Ram to the west of her.

On the 13th, the Moon is on the meridian at eight o'clock at night, the Pleiades being near to her to the west, and her passage by them this evening will interest the astronomer: she is directing her course to the second of the Bull. On the 14th, she is on the meridian at fifty-seven minutes past eight, having below her, near to the meridian to the west, Aldebaran with the Hyades, to the east of her the second of the

Bull, which she will evidently have passed before her next appearance, and at a greater distance from her to the west the Pleiades. On the 15th, she is on the meridian at fifty-six minutes past nine, the two stars in the tips of the Bull's horns being now to the west of her, and she is directing her course to the two first stars of the Twins. On the 16th, she is on the meridian at fifty-four minutes past ten, the fifth of the Twins being below her to the west, and the two first above her to the east. On the 17th, she is on the meridian at forty-seven minutes past eleven, the two first stars of the Twins being above her to the west, the second near to the meridian, under which she has passed in her previous course.

On the 18th is full Moon, at fourteen minutes past seven in the morning, but with too great a northern latitude for an eclipse. In the evening she rises under the two first stars of the Twins, and is soon followed by the two small stars and included nebula of the Crab, which will be lost in her superior splendour. On the 19th, she rises soon after the small stars in the head of the Lion, and is seen afterwards to direct her course to the first of this constellation. On the 20th, she rises near to and soon after the first of the Lion, her recess from this star being the chief feature in her progress during the night. On the 21st, she rises under the body of the Lion, and directs her course under the second of the Virgin. On the 22d, she is followed soon after her rising by the second of the Virgin, under which star she passes before midnight. On the 23d, she rises under the seventh of the Virgin, and is perceived afterwards to be directing her course to the first. On the 24th, she rises under the five stars in triangle of the Virgin, passing under the first of this constellation at forty-two minutes past four in the morning of the 25th.

On the 26th, the Moon rises in the morning under the tenth and eleventh of the Virgin, the first being above her at some distance. On the 27th, she rises under the first of the Balance. On the 28th, she rises nearly with the second of the Scorpion to the east of her, passing under this star in her course to Antares, under which she will have passed before her next appearance. On the 29th, she rises under Antares, now to the west of her, and will be seen to be directing her course under Venus, at a considerable distance from her to the east.

Mercury is a morning star. His latitude, on the 1st, is sixty-five minutes north, in the twentieth degree of the ninth sign. He passes the ecliptick in his descending node on the 9th, in the thirtieth degree of this sign; and his southern latitude increases to the end of the month, his motion continuing to be direct; and on the last day it is one degree fifty-eight minutes, in the fifth degree of the eleventh sign. At Sunrise on the 1st he is only about nine degrees above the horizon, near south-east-by-south, and this height is daily decreasing. He will be seen by the telescopick observer above and to the east of the eighth of the Serpent-bearer, and he directs his course to Herschel, whom he passes on the 8th, being then thirteen minutes and a half from him to the north, and having above him to the east the twelfth of the Archer. At this time he is only between six and seven degrees above the horizon at Sun-rise, near south-east-by-south. The Moon passes him on the 2d.

Venus is a morning star. Her latitude, on the 1st, is one degree thirty-nine minutes north, in the seventh degree of the ninth sign; and it decreases during the whole month, being, on the 25th, thirty-seven minutes, in the seventh degree of the tenth sign. Her motion is direct. The duration of her stay above the horizon before Sun-rise is at first about two hours and three quarters. She is first seen above and near to the twenty-fourth of the Scorpion, having to the west of her the second, and below her the first, or Antares, nearly at equal distances. She directs her course to the small stars in the head of the Archer, passing between the seventeenth and eighth of the Serpent-bearer on the 10th, and under the twelfth of the Archer on the 21st, and she finishes it to the east of the small stars in the head, near to the thirteenth. The Moon passes her on the 1st, and on the 31st.

Mars is in conjunction with the Sun on the 11th, and consequently a morning star after that time. His latitude, on the 1st, is fifty-five minutes south, in the fourteenth degree of the tenth sign; and it increases during the whole month, being, on the 25th, one degree two minutes, in the third degree of the eleventh sign. He is too near the Sun the whole month to be visible. The Moon passes him on the 4th.

Ceres is on the meridian about Sun-rise in the middle of the month, and in the former part after it. Her latitude, on the 1st, is seven degrees two minutes north, in the eighteenth degree of the eighth sign, increasing to seven degrees six minutes, in the twenty-seventh degree of this sign, on the 25th, her motion being direct. She will therefore be at first easily discovered by directing the telescope to the second of the Balance, and noticing the small star (ξ), the fourteenth of this constellation, and under them she will be discovered. She moves in the barren space towards (ψ) the twenty-third of this constellation, at about a degree above which star, and to the east of it, she finishes her course. The Moon passes her on the 28th, but from the southern latitude of the one, and northern of the other, at a great distance from her.

Jupiter is an evening star, setting about ten at night on the 3d, and every succeeding evening earlier. He passes over the meridian at half past four after noon on the 1st, and every succeeding evening earlier. His latitude, on the 1st, is seventy-three minutes south, in the nineteenth degree of the twelfth sign; and it slowly decreases, being, on the 25th, seventy minutes, in the twenty-third degree of this sign.

He is in the barren space under the four stars in square, and when on the meridian, at first, the two western are to the west, and the two eastern to the east of it, nearly at equal distances; but the two eastern become every day nearer to it at the same time. Below him are the twenty-first, and the small twenty-thirds of the Water-bearer, stars in the stream of the Urn, from which he is slowly receding. To the east of him is Saturn, to whom he is directing his course. The Moon passes him on the 8th, at fifty-four minutes past eight at night, at the distance of about a degree.

Saturn is an evening star. He is on the meridian, on the 4th, at half past five after noon, and on the 20th at Sun-set. His latitude, on the 1st, is two degrees twenty-eight minutes south, in the eighth degree of the first sign; and it continually decreases, being, on the 25th, two degrees twenty-two minutes, in the ninth degree of this sign, his motion being direct. We shall see him therefore at first, when on the meridian, under the fourth of the Fishes, to the east of and near to it; and at the close of the month they will be on the meridian at the same time. Above him are the four stars in square to the west, and the three first stars of the Ram to the east of the meridian. Jupiter is below him, at some distance to the west. The Moon passes him on the 10th.

Herschel is a morning star, so near the Sun that he will not be visible in the early part of the month; but at the close of it he is about eleven degrees above the horizon at Sun-rise. His latitude, on the 1st, is twelve minutes south, in the thirtieth degree of the ninth sign; and it continues nearly the same the whole month. He is, on the 25th, in the first degree of the tenth sign, his motion being direct. He will, when he becomes visible, be seen therefore under the twelfth of the Archer, having the eleventh below him to the east, and a telescope of small powers will thus easily detect him. The Moon passes him on the 3d.

The Moon's apparent diameter, on the 1st at midnight, is thirty-one minutes; and it increases to the 7th, during which day it is about thirty-two minutes twenty-eight seconds; it then decreases to the 23d, during which day it is about twenty-nine minutes and a half; and increases afterwards to the end of the month, being, on the last midnight, thirty-two minutes four seconds. The Sun's apparent diameter, on the 4th, is thirty-two minutes thirty-five seconds; and on the 18th thirty-two minutes thirty-four seconds. The Sun enters the eleventh sign on the 20th, at a quarter past seven in the morning.

The positions of the fixed stars, at any hour of the night, may be known by referring to the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		16		24	
	h.	m.	h.	m.	h.	m.	h.	m.
X.	4	43	4	12	3	38		
XI.	6	44	6	13	5	39	5	5
XII.	8	50	8	19	7	45	7	11
I.	10	40	10	9	9	35	9	1
II.	0	43	0	12	11	38	11	4
III.	2	32	2	1	1	27	0	53
IV.	4	53	4	22	3	48	3	14
V.	6	44	6	13	5	39	5	5
VI.			8	9	7	35	7	1

FEBRUARY, 1821.

WHEN a person views the heavens on a fine starlight night, and marks how one star differs from another in glory, and that they seem to be strewed about the expanse without any appearance of order and regularity, and then casts his eyes upon a globe, and sees them parcelled out in various divisions, under figures, some of a very uncouth shape, he is naturally led to enquire when this arrangement first took place, and what was the origin of those figures, which seem to have no allusion whatever, except perhaps in the zodiack, to each other. This enquiry has produced many ingenious treatises, but a satisfactory explanation has not hitherto been given; and perhaps it may lie involved in the darkness of such remote antiquity, that a complete solution of the whole is beyond the reach of modern investigation.

We are naturally led, in the course of such enquiries, to those nations, in which astronomy has been particularly cultivated; and if we should find one, in which it entered into their civil or religious institutions, we may conclude, that it is probable in examining them to find the source of that, which appears to us at present so difficult to be explained. That astronomy was early cultivated we cannot reasonably doubt. The Sun and the Moon were in the earliest ages for signs, and for seasons, and for days, and for years; and the long lives of our antediluvian ancesters gave them facilities in this respect, which would set them on a par at least with us, notwithstanding our superior advantages in the invention and improvement of glasses.

I can scarcely doubt, that Noah carried with him into the ark as good a knowledge of the motions of the Moon and Planets, derived from personal observation and information handed down from his predecessers, as we possess at present. In what manner the heavens were divided at that time we have no means of ascertaining; but it is not improbable, that the motion of the Moon would very early lead to the division of the ecliptick into twelve parts, and that the stars in those parts would have some names assigned to them. Indeed it is scarcely probable, that the stars of the first magnitude would not in a very early age be distinguished from each other by some particular epithet; but as the attention of the first observers would be carried to the Moon and Planets, it might be some time before the stars in the other parts of heaven had any particular arrangement.

The motion of the planets in the zodiack, the difference in their splendour at different times, the diversity of their colours, would naturally lead to a distinction of them by names; but on what these names were founded we cannot at present determine. At first the appellation of morning and evening star to Jupiter and Venus might be sufficient. They would soon be found not to be the same bodies, and appropriate names would consequently be given. Mars and Saturn are so strikingly different from them, and from each other, that we may with the same ease conclude, that they also in no great length of time would have peculiar appellations. The names now given to these heavenly bodies are of Greek origin, and adapted to their foolish mythology. That vain and empty nation came very late to the knowledge of these subjects. Whatever they knew they borrowed from the East; and from their idle tales they have been successful in casting a veil over the knowledge, which we might have derived from better instructed nations. They have however preserved to us the saying of an Egyptian philosopher, which saves us any farther remarks on this subject: Ἑλληνες αει ϖαιδες: The Greeks, ever children. This character of them is strongly marked in their writings; and we are not therefore surprised, that, if the doctrine of the Cross was to the Jews a stumbling-block, it was to the Greeks foolishness.

The Greeks were an insignificant people, scarcely to be found, in history, when arts and sciences flourished in a very high degree in the regions to the east of them; but what we are in quest of dates its origin ages antecedent even to this period. Egypt is well known, both from sacred and profane history, to have been very early famed for its literature and science, and perhaps we are indebted to that country for the first rudiments of geometry. But from the same sources we find, that astrology was peculiarly cultivated in Chaldea; and though we may not allow many degrees of probability to the tradition, that the famed tower of Babel was dedicated to astronomical observations, yet we cannot doubt, from the frequent allusions to this subject in the prophets, that in the famed city of Babylon astrologers formed a conspicuous part of the inhabitants of that depraved city.

We know also, that the heavenly bodies formed objects of worship in very ancient times. They were looked upon, as is the case with too many infatuated people in the present day, to have an influence, according to their risings, settings, and various fanciful positions, on their lives and fortunes. Even at the present day, to calculate nativities is a source of profit, though the individuals, who profess the art, are held in little estimation, and in general carry on their trade under great disadvantages. But this was not the case formerly; and indeed at the present day the astrologer is no mean personage in Eastern courts. When adoration was paid to the Sun, Moon, and Stars, the astrologer would naturally arrogate to himself a sacred character; and the people, whether in high or low ranks, would be accustomed to pay him a degree of reverence. This could not be kept up without guarding his profession from the profane eye of vulgar curiosity. His mysteries would be covered by symbols, not easily to be understood, and schools and colleges would be established for the initiation of those, to whom afterwards the picking of the pockets of the people was to be entrusted. In these seminaries of education the true motions of the heavenly bodies would be probably explained; and whatever use might be made of them for fraudulent purposes, still the science itself of astronomy would be cultivated; and we have to regret, that the tables of observations delivered to Alexander at Babylon have been lost.

If you are led to the suspicion, that, as astrology was so much cultivated at Babylon, and in fact its professers were the established priesthood of that city, it is from that city, I think, and the previous information it derived from the astronomers of Chaldea, that we may expect to gain some knowledge of the figures in our heavenly sphere, and of their application to the purposes they had in view; namely, the keeping of the minds of the people subjected to them by a debasing superstition, and thence deriving to their order peculiar privileges and immense profits. But on this I leave you to speculate, and proceed to notice the appearances in the heavens for this month.

The Moon passes the ecliptick on the 4th, in her ascending node, between seven and eight in the afternoon, in the fifteenth degree of the twelfth sign; and her northern latitude then increases to the 10th, when it is, at midnight, nearly five degrees and a quarter, in the twelfth degree of the third sign. It then decreases to the 18th, when she passes the ecliptick about seven in the morning, in the fourteenth degree of the sixth sign; and her southern latitude afterwards increases to the 25th, when it is, at midnight, five degrees seventeen minutes, in the seventeenth degree of the ninth sign; decreasing then to the end of the month, when it is, at the last midnight, three degrees fifty-five minutes, in the twenty-seventh degree of the tenth sign.

New Moon takes place on the 2d, at thirty-eight minutes past six after noon, but with too great a southern latitude for an eclipse. Her crescent is seen, on the 4th, under Jupiter, above which planet she is directing her course to

Saturn. On the 5th, she is seen above and near to Jupiter, having passed him at twenty-six minutes past one this afternoon, and her course is evidently directed above Saturn. On the 6th, she is perceived to have passed Saturn, now below her, as they are at opposite sides of the ecliptick. On the 7th, she is perceived to have moved with a rapid pace from Saturn and Jupiter, the three first stars of the Ram being above and near to her.

On the 8th, the Moon is on the meridian at fifty-seven minutes past four in the afternoon, the three first stars of the Ram being now above her, but to the west of the meridian, and she directs her course to the Pleiades. On the 9th, she is on the meridian at fifty-one minutes past five, having the Pleiades above and near to her to the east, and her passage by these stars before midnight will interest the astronomer. On the 10th, she passes the meridian at forty-seven minutes past six, being between the Pleiades to the west and the second of the Bull to the east of her, and having Aldebaran and the Hyades directly under her. On the 11th, she is on the meridian at three quarters past seven, having the second of the Bull now to the west of her, as she passed this star at twenty-three minutes past three in the afternoon. On the 12th, she is on the meridian at forty-two minutes past eight, being between the second of the Bull to the west, and the two first stars of the Twins to the east of her: the fifth of this latter constellation is below her to the east.

On the 13th, the Moon passes the meridian at thirty-seven minutes past nine at night, being under the two first of the Twins, the first being to the west, the second to the east of the meridian, and nearest to her. Her passage under these stars is the chief feature in her course this night, which she is directing to the first of the Lion. On the 14th, she is on the meridian at twenty-nine minutes past ten, having the two first of the Twins above her to the west, and near to but below her the two first stars and included nebula of the Crab to the east; and she passes the stars before Moon-set. On the 15th, she is on the meridian at seventeen minutes past eleven, being under the small stars in the head of the Lion, the eleventh being almost directly above her, and the first of this constellation below her to the east. On the 16th, she is on the meridian about midnight, having the first of the Lion near to her but to the west, as she passed this star about an hour before; and her passage by it is the chief feature of her course.

On the 17th is full Moon, at twenty-seven minutes before one in the morning. In the evening she rises under the first of the Lion, and is afterwards seen to be directing her course under the second of the Virgin. On the 18th, she rises under the constellation of the Lion, and is soon followed by the second of the Virgin, under and near to which she passes before Moon-set, directing her course to the first. On the 19th, she rises under the seventh of the Virgin, being on the opposite side of the eclip-tick to this star, and she continues her oblique course from this line from the five stars in triangle of the Virgin. On the 20th, she rises under the five stars in triangle of the Virgin, being soon followed by the first, which she will have passed before her next appearance. On the 21st, she rises under the first of the Virgin, having passed this star about noon. On the 22d, she rises under the tenth and eleventh of the

Virgin, and is soon followed by the first of the Balance, under which she passes before daylight of the 23d.

On the 24th, the Moon rises in the morning under the two first stars of the Balance, and is afterwards seen to direct her course to Antares. On the 25th, she rises under the second of the Scorpion, and is soon followed by Antares, but she does not pass this star till twenty-one minutes past seven; but we shall notice, from the direction of her course, her great southern latitude, which makes the duration of her stay above the horizon less than that of the Sun on the shortest day. On the 26th, she rises under Antares, now at some distance from her to the west. On the 27th, she is seen passing under the eleventh and twelfth of the Archer, directing her course under the small stars in his head.

Mercury is in his superior conjunction with the Sun on the 10th, and consequently after that time an evening star. His latitude, on the 1st, is two degrees south, in the sixth degree of the eleventh sign; and it decreases to the 27th, when he passes the ecliptick in his ascending node, in the twenty-fourth degree of the twelfth sign. The favourableness of his position in the zodiack, when he becomes an evening star, renders him an object of telescopick observation during the latter part of the month, as, on the last day, he will be at Sun-set about thirteen degrees above the horizon, in south-west-by-west, being then under Jupiter. The Moon passes him on the 2d.

Venus is a morning star. She passes the ecliptick in her descending node on the 7th, in the twenty-third degree of the tenth sign; and her southern latitude increases the whole month, being on the 25th forty-six minutes, in the fifteenth degree of the eleventh sign. Her motion is direct. She is visible above the horizon before Sun-rise, at first not quite an hour and a half, and this is daily decreasing; and her height at Sun-rise is only about seven degrees. She is first seen under and near to the small stars in the head of the Archer to the east, and, after traversing the barren space between them and the two first stars of the Goat, passes under the latter stars on the 15th; and she finishes her course above and near to the four small stars in the tail of this constellation. The Moon does not pass her this month.

Mars is a morning star. His latitude, on the 1st, is one degree three minutes south, in the eighth degree of the eleventh sign; and on the 25th one degree five minutes, in the twenty-seventh degree of the eleventh sign; continuing nearly the same till the end of it. He emerges very slowly from the Sun's rays, and the greatest length of his duration above the horizon before Sun-rise is scarcely half an hour; and during that time he is so near to the horizon, that he will not easily be detected. The Moon passes him on the 2d.

Ceres is on the meridian about half an hour before Sun-rise on the 1st, and at six in the morning on the 19th. Her latitude, on the 1st, is seven degrees eight minutes north, in the twenty-ninth degree of the eighth sign; and it increases to seven degrees thirteen minutes, in the fifth degree of the ninth sign, on the 25th, her motion being direct. She is first seen above and to the east of (ψ) the twenty-third of the Balance, a star between five and six degrees above the second of the Scorpion, to the west of it; and she directs her course towards (φ) the twenty-first of the Serpent-bearer, about two degrees from which star, but above and to the west of it, she finishes her course. The telescopick observer will notice her progress by small stars, not apparent to the eye. The Moon passes her on the 25th, but at some distance.

Jupiter is an evening star, setting, on the 1st, about half past eight, and every succeeding evening earlier. His latitude, on the 1st, is sixty-nine minutes south, in the twenty-fourth degree of the twelfth sign; and it slowly decreases, being, on the 25th, sixty-seven minutes, in the thirtieth degree of the twelfth sign. He is in the barren space under the four stars in square, slowly approaching to the line drawn through the two eastern of these stars and produced, but he does not reach it this month. Saturn is above him, and the chief feature in his course is his slow progress towards this planet. The Moon passes him on the 5th.

Saturn is an evening star. His latitude, on the 1st, is two degrees twenty-one minutes south, in the tenth degree of the first sign; and it continually decreases, being, on the 25th, two degrees seventeen minutes, in the twelfth degree of this sign, his motion being direct. We shall see him therefore, when the stars appear, under the small stars in the eastern band of the Fishes, Jupiter being at some distance below him. He passes the fourth of the Fishes on the 24th. The Moon passes him on the 6th.

Herschel is a morning star. His latitude, on the 1st, is thirteen minutes south, in the second degree of the tenth sign; and it continues nearly the same the whole month. On the 25th, he is in the third degree of this sign, his motion being direct. He rises, on the 1st, about five in the morning, and on the 17th at four. The twelfth and eleventh of the Archer continue to be good guides to him, the former star being above him to the west, the latter below him to the east; and at the close of the month he approaches near to the line between these two stars. The Moon passes him on the 27th.

The Moon's apparent diameter, during the 4th, is about thirty-two minutes fifty-six seconds; and it then decreases to the 20th, during which day it is about twenty-nine minutes twenty-six seconds; and it afterwards increases to the end of the month, being, on the last midnight, thirty-two minutes six seconds. The Sun's apparent diameter, on the 14th, is thirty-two minutes twenty-six seconds; and on the 25th thirty-two minutes twenty-one seconds. The Sun enters the twelfth sign on the 18th, at fifty-seven minutes past nine at night.

For the appearances of the fixed stars, at any hour of the night, consult the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		15		22	
	h.	m.	h.	m.	h.	m.	h.	m.
XI.	4	32	4	4				
XII.	6	38	6	10	5	42	5	15
I.	8	28	8	0	7	32	7	5
II.	10	31	10	3	9	35	9	8
III.	0	20	11	52	11	24	10	57
IV.	2	41	2	13	1	45	1	18
V.	4	32	4	4	3	36	3	9
VI.	6	28	6	0	5	32	5	5

MARCH, 1821.

BABYLON of ancient times is made in our Holy Scriptures the type of a state to take place in a later period of society; and the history of the dark ages scarcely permits us to doubt where the state prophesied of existed. The two Babylons resemble each other in many features: that which has been destroyed, and of which scarcely a vestige remains to discover even its situation, perverted the book of nature; the modern Babylon corrupted, for equally sinister purposes, the book of grace. In the former state was set up an immense image; and to the worship of it all were bound to conform, under the severe penalty of death by fire: in the latter state conformity was equally required in the worship of an imaginary deity, and a variety of images; and the penalty of disobedience was, as in the other, death by fire. In both states were seen men, who preferred this punishment to the violation of their conscience; but the examples were rare, and the great mass of the people were debased by an abject superstition.

Much has been said in the present times of the book of nature, and of its competence to teach man the whole of his duties. The advocates for this opinion lay claim to a decided preference in favour of it, from the presumption, that their book is not liable to the abuses, which have been notoriously prevalent, and supposed to be founded on the Holy Scriptures. But their claim will not be easily allowed, when we look to former times, and the book of nature was equally open to mankind as it is at present. The heavens presented to the inhabitants of Babylon, as they do to us, the majesty of the Sun in his daily progress, and the splendour of the Moon and Stars in their nightly courses. But that, which ought to have raised the mind to the contemplation of the Most High, was made an instrument of delusion to carry it away from the Creater.

Let not then the advocate for natural (as it is improperly termed) pretend to boast over the believer in revealed religion. Both may be abused, and both have been abused; but from the abuses of either no solid argument can be raised. If any one by the study of the works of God can raise himself to the knowledge of Him, whom the Heaven of Heavens cannot contain, and from this study attains in a high degree to the love of God and of his neighbour, and keeps himself free from the pollutions of the world, such a man might be quoted to shame the professing Christian, who, with the book of grace before him, prides himself on the name of Christian, while he is every day violating the precepts of his master.

In what manner the worship of the heavenly bodies was first introduced we have no records to discover. Temples were raised, probably, first in honour of the Sun and Moon; and in process of time to the whole host of heaven. When the science of astrology first took its rise we are equally at a loss to determine; but probably it owed its origin to some accidental coincidences between conjunctions in the Heavens and considerable events upon Earth; and when once the idea was started, it is no wonder that it was entertained. Mankind are fond of the marvellous. The persons, who predicted the risings and settings of the morning and evening stars; who pointed out the times, when Saturn, or Jupiter, or Mars, should be on the meridian; who talked mysteriously of their aspects, trine and quadrate; and by figures, inexplicable to the by-standers, determined the future events of life; these men, in an age of ignorance, particularly if the power of the state lent its aid to their delusions, would gain such an ascendancy, that to resist them would be dangerous, and by degrees their sway would become universal.

Such, we may imagine, was the process at Babylon. Before superstition obtained the triumph it did in the days of Nebuchadnezzar, the astrologers had prepared its way. They had got the lower classes to believe in their arts, and sovereign power found such an instrument very convenient for the government of the people. An education, superior to that of the generality, was evidently necessary for these impostors. Rules must be laid down for their pretended science; the doctrine of the sphere must be familiar to them; and what we should think now a very low attainment in science might then advance a man to very high preferment.

It would not be difficult to imagine, that very slight materials were sufficient to raise the superstructure of the temple of fraud. Rude representations of the positions of stars and planets might serve at first; but as the people could not easily keep in memory what the asterisks represented, it is probable, another device was employed, by which, in fact, the mysterious part of the business was better preserved. The Sun and the Moon might be represented under some emblematical appearance; a man, for example, with a radiance around his head, for the Sun, as in fact Apollo is sometimes represented in this form; and for the Moon a female, with a crescent on the head, as was seen on the statues of Diana. The planets would have their respective figures; and perhaps the marks for them, now used in our astronomical books, may be only abbreviations derived in process of time from ancient emblems. Having advanced thus far, as the multiplicity of objects of worship was evidently attended with increase of gain to the priesthood, they would be led to group the stars in forms; and as a form might be connected in some measure with the birth of a person, it would become to him a peculiar object of adoration; and as the ignorant among the Papists place lights on certain days under the statues of their favourite saint, so the superstitious Babylonian would, on his birthday, decorate the image of the constellation, which shed its influence upon him at his birth.

In this manner it appears to me not unlikely, that our heavenly sphere was divided by the Babylonian priests into regions occupied by figures of men, women, and animals, as suited their purpose. The brighter stars were honoured by peculiar names and peculiar symbols: the groupes had also their names and their symbols. The poor devotee could, on the plan given to him, recognise at any time, under the figure of a lion, a bear, or a virgin, the stars, which superintended over his destiny, better than if they had been marked out by asterisks: and as it was not the wish or intention of the priest to lead him to the knowledge of heaven, these figures served a much better purpose. It is easier to compose a hymn in honour of a lion than of the group of stars which go under that name in the heavens. How far the constellations we now have agree with those delineated by the Babylonian priests we have scarcely data at present to ascertain; but we have a clue to them, which probably future investigation may unravel. This I may hereafter suggest to you, proceeding, for the present, to the appearances in the heavens in this month.

The Moon passes the ecliptick in her ascending node on the 4th, between six and seven in the morning, in the fourteenth degree of the twelfth sign, but previously to the passage an eclipse of the Sun takes place, invisible in this country. The Sun will be eclipsed centrally on the meridian at thirty-six minutes past five in the morning, in east longitude ninety-five degrees fifty-eight minutes and a quarter, and in south latitude eight degrees twenty-eight minutes and a half. Her northern latitude increases to the 10th, when it is, at noon, five degrees seventeen minutes, in the fifteenth degree of the third sign; and it afterwards decreases to the 17th, when she passes the ecliptick in her ascending node, between two and three in the afternoon, in the fourteenth degree of the sixth sign. Her southern latitude now increases to the 24th, when it is, at midnight, five degrees and a quarter, in the thirteenth degree of the ninth sign; and it then decreases to the 31st, when she, for the third time in this month, passes the ecliptick, between five and six in the afternoon, in the thirteenth degree of the twelfth sign.

The new Moon takes place on the 4th, at thirty-seven minutes past five in the morning, when there will be an eclipse of the Sun, as before noticed, but invisible in this country. To those, who have a favourable horizon in west-by-south, the setting crescent of the Moon may be seen near it in the evening of this day, about half an hour after Sun-set; and should it be seen so soon after the conjunction the observer will consider, that she has moved from the Sun with great rapidity since her conjunction, and her place in the zodiack is favourable to her height above the horizon at Sun-set. She is then under Jupiter and Saturn, and is about three quarters of an hour above the horizon after Sun-set. On the 5th, she is seen above Jupiter, and directing her course above Saturn to the Pleiades. On the 6th, she is seen at some distance above Saturn, as her motion will be perceived to have been very rapid. On the 7th, she is seen between the three first stars of the Ram and Menkar, but near to the former stars. On the 8th, she is seen under the Pleiades, but she will have passed these stars before her next appearance. On the 9th, she is perceived above the Pleiades, directing her course to the second of the Bull. On the 10th, she is seen under and near to the second of the Bull, and her passage by this star is the most material feature in her progress, as she passes it at a quarter past nine.

On the 11th, the Moon is on the meridian at forty-two minutes past six in the evening, having directly under her the seventh and twelfth of the Twins, the seventh to the west and the twelfth to the east of it: she directs her bending course under the two first of this constellation. On the 12th, she is on the meridian at thirty-eight minutes past seven, being under the two first stars of the Twins to the east of it, the first star being near to it. On the 13th, she is on the meridian at thirty-one minutes past eight, the two first stars of the Twins being now above her to the west, and the two small stars and included nebula of the Crab below her to the east; but she does not reach the latter during her stay above the horizon. On the 14th, she is on the meridian at twenty minutes past nine, having above her to the east the small stars in the head of the Lion, and directing her course to Regulus, the first of this constellation.

On the 15th, the Moon is on the meridian at five minutes past ten at night, having the small stars in the head of the Lion now above her to the west, and Regulus below and near to her to the east; but she does not reach this star till about Moon-set. On the 16th, she is on the meridian at forty-seven minutes past ten, having now above her, at some distance to the east, the fourth, eighth, and second of the Lion, and to the west the first, seventh, and third of this constellation, the latter near to the meridian. On the 17th, she is on the meridian at twenty-seven minutes past eleven, having now above her the fourth, eighth, and second of the Lion, the two former stars to the west, and the latter to the east of the meridian. She is directing her course under the second of the Virgin to the east of her, but she does not pass this star till after Moon-set.

On the 18th is full Moon, at fifty-three minutes past six in the evening, but with too great a southern latitude for an eclipse. She rises under the second of the Virgin, and is afterwards perceived, by her passage under the seventh, to be directing her course under the first, at a considerable distance from her. On the 19th, she rises under the five stars in triangle of the Virgin. On the 20th, she rises under the first of the Virgin, having passed this star at thirty-four minutes past six this evening. She is directing her course, but at a very slow rate, to Antares, the first of the Scorpion. On the 21st, she rises under the first of the Virgin, at some distance from her to the west, and the tenth and eleventh of this constellation much nearer to her to the east, directing her course under the first of the Balance. On the 22d, she rises under the two first stars of the Balance, the first being almost directly above her, and the second consequently at a much greater distance above her to the east. On the 23d, she rises under the second of the Scorpion; and during the morning of the 24th is perceived to be approaching the first of the Scorpion, but she does not pass him for a considerable time after Moon-set.

On the 25th, the Moon rises in the morning under the first of the Scorpion, having passed this star at twenty-two minutes past two after square, she will be but little noticed. The Moon passes her on the 2d.

Mars is a morning star. His latitude, on the 1st, is one degree five minutes south, in the thirtieth degree of the eleventh sign; and it decreases very slowly, being, on the 25th, one degree three minutes, in the nineteenth degree of the twelfth sign. Notwithstanding his distance from the Sun has increased and is increasing, yet the unfavourableness of his position and southern latitude keep him too near the horizon during his short stay above it before Sun-rise to be noticed. The Moon passes him on the 3d.

Ceres is on the meridian about half past five in the morning of the 1st, and a quarter past four on the 25th. Her latitude, on the 1st, is seven degrees fourteen minutes, in the sixth degree of the ninth sign; and it increases a minute, and then decreases, being seven degrees fourteen minutes, in the ninth degree of the ninth sign; on the 25th, her motion being direct but slow, through little more than three degrees. The star (φ) the twenty-first of the Serpent-bearer is our direction to her, above which, and to the west of it she is first seen, passing it in the first week. The Moon passes her on the 24th.

Jupiter is in conjunction with the Sun on the 27th, and consequently to that time an evening star. His latitude, on the 1st, is sixty-six minutes south, in the first degree of the first sign; and it continues nearly the same the whole month; and on the 25th he is in the sixth degree of the first sign. From the favourableness of his position he will be seen for some time in the evening after Sun-set, notwithstanding the daily approach of the Sun to him, as the duration of his stay above the horizon after Sun-set, on the 1st, is nearly an hour and a half, and about an hour on the 7th. He passes the line drawn through the two eastern of the four stars in square at the end of the first week, and forms for some time a pleasing object with Saturn above him in the east after Sun-set. The Moon passes him on the 5th.

Saturn is an evening star; but, as his conjunction takes place soon after the end of the month, he will cease to be visible before that time, though the favourableness of his position makes his stay above the horizon after Sun-set, on the 1st, two hours and a quarter long, and it is half an hour on the 20th. We shall see him therefore under the small stars in the eastern band of the Fishes, but lose sight of him before he passes the fifth of this constellation. The Moon passes him on the 6th.

Herschel is a morning star, rising, on the 1st, about a quarter past three in the morning, and on the 19th about two. His latitude, on the 1st, is thirteen minutes south, in the third degree of the tenth sign; and fourteen minutes on the 25th, in the third degree of this sign, his motion being direct. The twelfth and eleventh of the Archer are excellent guides to him, as he passes the line between them about the end of the first week, and he is seen directly above the eleventh at the end of the month. The Moon passes him on the 26th.

The Moon's apparent diameter, on the 4th at midnight, is thirty-three minutes twenty seconds; and it then decreases to the 19th, during which day it is about twenty-nine minutes twenty-four seconds; and it afterwards increases to the end of the month, being, on the last midnight, thirty-three minutes sixteen seconds. The Sun's apparent diameter, on the 1st, is thirty-two minutes nineteen seconds; on the 7th, thirty-two minutes sixteen seconds; and, on the 24th, thirty-two minutes six seconds. The Sun enters the first sign on the 20th, at nine minutes past ten at night, this being the vernal equinox.

The positions of the fixed stars, at any hour of the night, may be known by referring to the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		16		24	
	h.	m.	h.	m.	h.	m.	h.	m.
I.	6	38	6	12	5	43		
II.	8	41	8	15	7	46	7	17
III.	10	30	10	4	9	35	9	6
IV.	0	51	0	25	11	56	11	27
V.	2	42	2	16	1	47	1	18
VI.	4	38	4	12	3	43	3	14
VII.	6	38	6	12	5	43	5	14

APRIL, 1821.

BABYLON was one of the most remarkable cities in ancient history. The space within its walls was perhaps the greatest, that has been contained in a similar enclosure by any capital in the world. The river Euphrates formed part of its glory; and as it was made the means of admission of an hostile army to overthrow the then existing government, so it mainly contributed afterwards to its final destruction. Its walls were celebrated as one of the wonders of the world; and, relying upon them, the last sovereign of the Chaldean dynasty laughed at the array of the Persians and Medes against the city. But the time was come for the destruction of the abominable tyranny, that had been set up in this detested metropolis. Its gates of brass, its extensive walls, its numerous army, were a weak defence; and the enemy was within the city whilst the proud monarch was revelling in impiety and debauchery, and courier after courier announced to him, that the Persians were marching with rapid strides to deprive him of his empire and his life.

The stratagem, by which the city was taken, was prefigured in prophecy in the sacred writings, and has been clearly described by profane historians. The Euphrates was diverted from its course at a little distance above the town; and as the channel became dry Cyrus marched a chosen body of troops, which went through the water gates under the wall; and, when they got within the inclosure, part turned aside to open the gates to the invading army, whilst the other continued its course to the palace, which soon became a scene of dreadful slaughter. Thus Cyrus destroyed the Babylonish empire, the first of the four empires under which the world groaned in succession, and which are so clearly pointed out in the description of the vision of the statue seen by the proud Nebuchadnezzar. This celebrated statue is not yet completely destroyed; but every thing we now see announces its final annihilation. The stone, cut out of the mountain without hands, will in no great length of time reduce it to powder;

and an empire will be established of a very different nature, in which the rights of humanity will be observed, and man, no longer led astray by the vain maxims of false glory, will learn to see in every man a brother, and, by making the love of God and of his neighbour the rules of his conduct, will transform this Earth into that Paradise it was intended to be, instead of exhibiting scenes of violence and oppression, of proud tyranny on the one hand, and abject subjection and debasement of mind on the other.

The breach in the banks of the Euphrates was not repaired. The conquerer, intent on his new acquisition, was not perhaps aware of the consequences, that would follow the diversion of a great body of the water of this majestic river; or, if he was, did not wish to make this the seat of his empire. The water, thus diverted from its ancient channel, beat upon the walls, and found out a course for itself. Thick as they were they were incapable, from the materials of which they were composed, of resisting the constant attack. They were made of bricks, not hardened by fire, but baked by the Sun, and it required ages before they were entirely decomposed. Still every year brought on impending ruin; and at last this magnificent city, the pride of the East, was converted into a marsh. Its proud temple of Belus, its magnificent hanging gardens, its numerous palaces, sunk to the ground; and travellers think only they can perceive the vestiges of their ancient site. So completely has been verified the prophetical word; and as certainly will every city, that follows the same principles, sooner or later meet with a similar fate.

We cannot contemplate this event without following the prophetical denunciations to another city, which seems to resemble, in so many particulars, that, whose destruction was foretold when in the height of its glory, and whose accomplishment has been verified to the minutest tittle. The temple of Belus was held in no less estimation in the East than the church of St. Peter at Rome is at present by the nations of Europe. In both was the pride of architecture displayed in the highest degree, and both seemed equally formed to endure for ever. But where is the temple of Belus to be found? and curiosity will hereafter be exhausted to discover the ruins of St. Peter's at Rome. The effect may not be produced exactly in the same way; but the causes, which are now operating for the destruction of the latter, will be as clearly developed by a future historian as those that cast the glory of ancient Babylon to the ground. The streams of wealth, that flowed into the Eternal City, as it has been fondly and proudly styled, from Great Britain, Denmark, Sweden, and great part of Germany, have long been dried up. France has in great measure followed the example of these kingdoms. Spain awakes from its long sleep, and is soon likely to amputate another limb from the great body. The disease approaches near to the Capitol, for Naples cannot regain its liberty if it leaves the domains of the Church untouched. Still it is not likely, that the existing generation should join in the triumphant song announced in our holy writings. We can rejoice only in the certainty, that what has been so clearly pointed out to us will, in the due course of providence, have its final accomplishment; and those of our posterity, whose minds are formed to delight in the superiority of truth over errour, of virtue over vice, will, when the day is come, exult with similar feelings to those of the prophet, who saw in his visions the fall of that monarchy, and of that proud city, which had made his country a scene of desolation and ruin.

Though the site of the temple of Belus and of the palaces of Babylon cannot be clearly ascertained, yet travellers, on ascending the Euphrates, meet with such marks, as, agreeing with the ancient descriptions of this city, clearly point out the space, nearly, on which it must have stood. Tradition assists them in their researches, and in digging on the spot they frequently meet with objects, that bear the marks of remote antiquity. Among them are engraved gems, which are preserved in the cabinets of the curious in different parts of Europe, and go under the name of Babylonian signets. These have been described by Mr. Landseer (well known for his skill as an engraver, and by his admirable Lectures on the Art of Engraving), in a Letter published in the eighteenth volume of the Archæologia; and he is now employed in an elaborate and more extensive work, in which the figures engraved on the signets are described, and a probable conjecture is made of their intention and use.

These gems are cylindrical, formed of cornelian, jasper, agate, or other precious stones. Their dimensions are various, in general from three quarters of an inch to more than two inches in length, and from an inch to three inches in circumference. All of them are perforated longitudinally, and from the remains of a small axis of iron in one of them it is probable, that they were in general furnished with a similar axis, by which they were made to revolve, thinks Mr. Landseer, as a garden roller, on a surface intended to receive an impression of what is engraved on the cylinder. These, he thinks, and with a very great degree of probability on his side, to have been used for the same purpose as seals are by us at present; the only difference being, that we stamp an impression on wax, whilst they performed the same thing by rolling the cylinder over the substance, whatever it may be, that was capable of receiving an impression. Thus a Babylonian would carry about with him his seal as we do at present; and it might have a string passed through the hollow, by which it was kept suspended; or it might be used as a ring. It is not improbable, that the signet used by Judah, the patriarch, was one of this description; and this carries us to a sufficiently remote antiquity:

but if it is not so, from their being now found in the ruins of Babylon, their origin may be fairly traced to a period, remote from the destruction of that city.

Thus time has brought to light an interesting fact; and though the traveller is not repaid for his labours by measuring the columns of an ancient temple, yet he has brought with him records of the city, which may perhaps be of more use to us in the subject, which I am particularly discussing. But this I will now leave to your conjectures, and proceed to unfold the appearances in the heavens for this month.

The Moon's latitude, on the 1st at midnight, is one degree and three quarters north, in the third degree of the first sign; and her northern latitude continues to increase to the 6th, when it is, at noon, five degrees twelve minutes, in the eleventh degree of the third sign. It then decreases to the 13th, when she passes the ecliptick in her descending node, between seven and eight in the evening, in the twelfth degree of the sixth sign. Her southern latitude now increases to the 21st, when it is, at noon, nearly five degrees seven minutes, in the sixteenth degree of the ninth sign; and it decreases to the 28th, when she passes the ecliptick in her ascending node, a little before one in the morning, in the twelfth degree of the twelfth sign; and her northern latitude then increases to the end of the month, when it is, at midnight, three degrees thirty-three minutes, in the twenty-seventh degree of the first sign.

The new Moon takes place on the 2d, at eleven minutes past three in the afternoon, but with too great a northern latitude for an eclipse; and on the evening of the 3d her crescent will be seen to the west of west-north-west for some time before Moon-set, under the three first stars of the Ram, her motion having been very rapid since the conjunction, the position of the zodiack favourable, and her latitude north: these three things conspiring together will be shown by the teachers of astronomy to make the duration of her stay above the horizon after Sun-set much longer than when these circumstances are less favourable. On the 4th, she is seen midway between the Pleiades and the three first stars of the Ram, directing her course to the former stars. On the 5th, she is seen, when these stars appear, near to the Pleiades, but to the east of them, and she directs her course still with great rapidity to the second of the Bull. On the 6th, she is seen under the second of the Bull, still making rapid though slower advances than before to this star, which she does not reach for some hours after Moon-set. On the 7th, she is seen at some distance above the second of the Bull, directing her course to the two first stars of the Twins. On the 8th, she is seen between the fifth and the two first stars of the Twins, the latter stars above, the former below but nearest to her. On the 9th, she is seen to have passed the two first of the Twins, the second of this constellation being nearest to but to the west of her.

On the 10th, the Moon is on the meridian at twenty-five minutes past seven in the evening, having the two small stars and included nebula of the Crab near to but to the west of her, the third being above and the fourth below her. On the 11th, she is on the meridian at eleven minutes past eight, being directly under the small stars in the head of the Lion, the two nearest of these stars, the eleventh and the fifth, being the former to the west, the latter to the east of the meridian. The first is below her to the east, and she will evidently have passed it before her next appearance. On the 12th, she is on the meridian at fifty-four minutes past eight, having almost directly above her the third of the Lion, the first being now to the west of her, as she passed this star at forty minutes before noon. On the 13th, she is on the meridian at thirty-five minutes past nine, being in a direct line almost with the eighth and fourth of the Lion, the former star being nearest to her; and to the east of them we notice the second. She is directing her course under the second of the Virgin.

On the 14th, the Moon is on the meridian at fourteen minutes past ten at night, having directly above her the second of the Virgin, the small stars in the head of this constellation, and the second of the Lion, in the order above mentioned; she is directing her course to the first, at a considerable distance from her. On the 15th, she is on the meridian at fifty-three minutes past ten, being under the five stars in triangle of the Virgin, the two nearest of these stars, the seventh and the third, being, the former to the west, the latter to the east of the meridian. On the 16th, she is on the meridian at thirty-three minutes past eleven, having near to her to the east the first of the Virgin, her passage by this star forming the chief feature in her progress.

On the 17th is full Moon, at thirty-one minutes after noon, but from her too great southern latitude without an eclipse. She rises in the evening with the tenth and eleventh of the Virgin, under the first, passing under the former stars in her course, directed under the first of the Balance. On the 18th, she rises under the first of the Balance. On the 19th, she rises under the two first stars of the Balance, with the second of the Scorpion to the east of her, under which star she directs her course to Antares. On the 20th, she rises under and near to Antares, having passed this star at nineteen minutes past eight this night. On the 21st, she rises at some distance under Antares; and bends her course, during the morning of the 22d, between the third and eleventh of the Archer.

On the 23d, the Moon rises in the morning under the eleventh and twelfth of the Archer, directing her course under the small stars in his head. On the 24th, she rises midway between the small stars in the head of the Archer and the two first stars of the Goat. On the 25th, she rises almost directly under the two first stars of the Goat, which, from her southern latitude, are at some distance from her. On the 26th, she is followed soon after her rising by the four small stars in the tail of the Goat, and her passage by the two highest is the chief feature in her course. On the 27th, she rises under the first and second of the Water-bearer, the former to the west, the latter to the east of her, and both at some height above her; and her passage by Jupiter and Saturn, at a considerable distance from her, would be interesting, if, from the unfavourableness of their position and nearness to the Sun, they were not so near the horizon.

Mercury is a morning star during the whole of this month, stationary on the 9th, and at his greatest elongation on the 22d. His latitude, on the 1st, is one degree thirty-two minutes north, in the thirtieth degree of the twelfth sign; and it decreases to the 7th, when he passes the ecliptick in his descending node, in the twenty-eighth degree of the twelfth sign. His southern latitude increases then to the end of the month, being, on the last day, two degrees fifty-five minutes, in the fifteenth degree of the first sign. His stationary point is in the twenty-eighth degree of the twelfth sign. The unfavourableness of his position and southern latitude, after the time, that in other circumstances he would, from his distance from the Sun, be an object of observation, renders him discoverable only to the acute observer. At his greatest elongation he is only between three and four degrees above the horizon at Sun-rise. The Moon passes him on the 1st.

Venus is a morning star. Her latitude, on the 1st, is one degree twenty-nine minutes south, in the twenty-eighth degree of the twelfth sign; and it decreases during the whole month, being, on the 25th, one degree thirteen minutes, in the twenty-eighth degree of the first sign. She continues near the horizon, during the short time that she is above it before Sun-rise; and in her course passes Jupiter and Saturn, the former planet on the 10th, when she is only twenty minutes from him to the south, and the latter on the 17th, when she is fifty-three minutes from him to the north; but they are so near to the horizon, that few will observe the passage by either. The Moon passes her on the 1st.

Mars is a morning star. His latitude, on the 1st, is sixty-one minutes south, in the twenty-fourth degree of the twelfth sign; and it decreases to the end of the month, being, on the 25th, fifty-three minutes, in the thirteenth degree of the first sign. The three planets, Venus, Mars, and Jupiter, are all near each other in the former part of the month; but they are in such an unfavourable position, and with southern latitudes, and Jupiter and Venus so near to the Sun, that they will scarcely be noticed during their short stay above the horizon. At the close Mars and Jupiter will be seen near to each other, as he passes Jupiter on the 26th, at the distance of fourteen minutes to the north of him. The Moon passes Mars on the 1st, and again on the 30th.

Ceres is on the meridian about three quarters past three on the morning of the 2d, and at three quarters past two on the 18th. Her latitude, on the 1st, is seven degrees twelve minutes north, in the ninth degree of the ninth sign;

and it decreases to seven degrees, in the eighth degree of this sign, her motion being retrograde through nearly two degrees and three quarters. The star (φ) the twenty-first of the Serpent-bearer, continues to be our directer to her, to the east of which she is seen, bending her course slowly towards it, which she finishes to the west of it; thus affording, about the close of the month, a good opportunity of detecting her, when on the meridian, above this star. The Moon passes her on the 20th.

Jupiter is a morning star, too near the Sun to be visible in the former part of the month; but towards the close he disengages himself from the power of its rays, though then he will be only about six degrees above the horizon at Sun-rise. His latitude, on the 1st, is sixty-six minutes south, in the eighth degree of the first sign, and on the 25th sixty-seven minutes south, in the fourteenth degree of that sign. The Moon passes him on the 2d, and again on the 30th.

Saturn is in conjunction with the Sun on the 6th, and consequently after that time a morning star. The position, which was before favourable to him as an evening star, becomes the contrary, as will be explained by the teachers of astronomy to their pupils, now that he is a morning star; and at the end of the month, when he has emerged sufficiently from the solar rays, he is only between three and four degrees above the horizon at Sun-rise. His latitude, on the 1st, is two degrees fifteen minutes south, in the sixteenth degree of the first sign; and it continues nearly the same, though increasing the whole month; and he is, on the 25th, in the nineteenth degree of this sign. The Moon passes him on the 30th.

Herschel rises about midnight on the 23d. He is on the meridian at a quarter past four in the morning on the 22d. His latitude, on the 1st, is fourteen minutes south, in the fourth degree of the tenth sign; and it continues nearly the same the whole month, his motion being very slow, as he is stationary on the 6th. Hence the eleventh of the Archer is a good guide to him, as he is above that star, from which he recedes slowly after the 6th. The Moon passes him on the 22d.

The Moon's apparent diameter, on the 2d at noon, is thirty-three minutes twenty-eight seconds; and it then decreases to the 15th, being, on this and the following day, about twenty-nine minutes twenty-four seconds. It afterwards increases to the end of the month, being, on the last day, thirty-three minutes eighteen seconds. The Sun's apparent diameter, on the 7th, is thirty-one minutes fifty-nine seconds; and on the 22d thirty-one minutes fifty-two seconds. The Sun enters the second sign on the 20th, at forty minutes past ten in the morning.

The position of the fixed stars during this month, at any hour of the night, may be known by referring to the volume for 1806, where they are laid down according to the following Table.

TABLE OF POSITIONS.

	1		8		16		24	
Pos.	h.	m.	h.	m.	h.	m.	h.	m.
II.	6	48	6	22	5	53		
III.	8	37	8	11	7	42	7	13
IV.	10	58	10	32	10	3	9	34
V.	0	49	0	23	11	54	11	25
VI.	2	45	2	19	1	50	1	21
VII.	4	45	4	19	3	50	3	21
VIII.			6	24	5	55	5	26

MAY, 1821.

A PERSON unacquainted with our seals, and the use to which they are applied, would be not a little surprised on examining the impression made by one of them. He would find it difficult to imagine what could be meant by the uncouth representations of birds, beasts, reptiles, flowers, trees, various works of nature as well as of art, not drawn with elegance of design, but purposely, it should seem, to make them correspond as little as possible with their originals. Many, indeed, who use these seals, are as little acquainted with the designs upon them; and in fact the knowledge is confined to a particular college, and to a few persons, who make it their study. They may be traced however to the shield of the warriour and to the standards of armed battalions; and there are families in this country, who can trace their coat of arms to the successful commanders of bodies of troops, enlisted for the sake of pay and plunder by the Norman conquerer of this country.

Armorial bearings are of small estimation in this country, compared with some others in Europe. This arises from the superior value of honest industry among us, and the influence, that may be acquired in spite of the pretensions of birth. Accessions are made to the peerage continually from the plebeian ranks; and a shield covered with sixty-four quarters will have but little sway, when opposed to a man of talents, whatever might have been the occupation of his father. Little also does the peer think, when his broken fortune is to be repaired, what was the origin of the lady, by whose wealth he is to be restored to opulence. Thus there is a continued mixture of noble and ignoble blood, which has a salutary effect on both orders of society.

Upon the Continent, also, the prejudices upon this subject are wearing out, and they received a severe blow by the French Revolution. In that country they have a nobility, that traces its origin to the days of Charlemagne, or beyond them; and another, formed from a similar race of men, chiefly successful warriours under the republick or the empire of Bonaparte, whose exploits were not inferiour to those of the Knights of the Round Table. If the pride of the former is formed upon the glorious deeds, as they are termed, of their ancesters, surely that pride is as well if not better founded, which rests upon the personal prowess of the first of the title. The peerage of a Nelson was his own acquisition; that of a present Marlborough owes its merit to a remote ancester; and the farther removed from that ancester the less, in a fair view of the subject, ought to be the merit of the possesser of the title, if it rest only on the claim of relationship.

Few persons, however, view this subject in its true light. Pride stands in the way, and makes its boast, we will say of arms, which can be proved to have been worn by an ancester at the first crusade. Your ancester was then in a situation of life, which placed him in the higher ranks of society: but, if this is a ground of respect, must not some regard be paid to the other ancesters, from whom you trace your birth? And how many are there, do you suppose, from whom you derive your blood; and in what stations of life were they? We have every one of us many millions of persons to reckon up, who have contributed to our birth; and the beggar on the dunghill and the king on the throne would each be equally surprised, if they were all marshalled before them, with the implements or ornaments of their respective occupations.

The seals of the Babylonians seem to have had a very different origin. The figures upon them are as uncouth to us as those upon ours would be to them. In the skill employed upon the workmanship there is little ground for superiority on our part, and at any rate these signets are a proof, that the art of engraving was well known and much cultivated in the East, long before there was any trace of it in the West. It may be, that this is one of the arts that Noah brought with him into the ark; and when men degenerated into idolatry, this and sculpture were made subservient to the impositions of priestcraft.

On these signets are engraven various figures. In some of them appear a group of stars, the

Sun and Moon, a ball, that may very well denote the planet, of which the figure above was the well-known representative. In one that I have seen is a figure, which leaves scarcely a doubt that it was intended for a representation of Aquarius, as it is that of a man with an urn, from which water is evidently flowing; and a ball below, on one side, brought forcibly to our minds the position of Jupiter, as it is seen at the time I am now writing, near the stream from the Urn. To bring the whole subject clearly and decisively before us, we should have designs taken from a great number of these signets; but from what have already been examined there is the strongest ground of probability, that they have all respect to some phœnomenon in the heavens, at the time for which they were executed. If we consider how much astronomy, or rather astrology, was cultivated at Babylon, the presumption gains additional strength; and on this account they may, in a scientifick point of view, lay claim to particular attention.

Let us suppose, then, that as the warriour at the crusades took, according to his fancy, a device for his shield, an appearance in the heavens at a particular time was made the device for a signet. How is this to be represented in a familiar manner? If we take the positions of certain stars with a planet, the representation would become obscure; but if figures were devised for different constellations, they would be known with ease to the inspecter, and by daily use would become familiar to the people. Hence it appears natural to conclude, that at a very early period the Chaldeans divided the heavens into districts or constellations; and for convenience sake, and the profit to be derived from their delusions on the publick, they gave figures to these groupes of stars, by which they could easily convey to the engraver what was intended to be represented on the signet. If this conjecture be true (and Mr. Landseer, by the opportunities he possesses of examining them, and the researches he is making into this subject, is best calculated to set it forth in the true colours), we have not only the origin of the constellations, but, if a sufficient number of these signets should be brought into Europe from Babylon, we may perhaps discover the forms of them in the ancient globe. I leave this, however, to your own conjectures, and proceed to examine the appearances in the heavens for this month.

The Moon's northern latitude increases to the 3d, when it is, at midnight, five degrees four minutes, in the twelfth degree of the third sign; and it then decreases to the 10th, when she passes the ecliptick in her descending node, about ten at night, in the twelfth degree of the sixth sign. Her southern latitude then increases to the 18th, when it is, at noon, five degrees, in the thirteenth degree of the ninth sign; and it afterwards decreases to the 25th, when she passes the ecliptick in her ascending node, between three and four in the morning, in the ninth degree of the twelfth sign. Her northern latitude now increases to the 31st, when it is, at noon, nearly five degrees, in the thirteenth degree of the third sign.

New Moon takes place on the 1st, at thirty-two minutes past eleven at night, but from her too great northern latitude without an eclipse. Her crescent, from her favourable position, and rapid motion since the conjunction, is seen under the Pleiades on the 2d, about eight at night, in the north-west-by-north, near the horizon. On the 3d, she is seen midway between the Pleiades and the second of the Bull, to which star she is directing her course. On the 4th, she is seen above and near to the second of the Bull, as she passed this star at forty-six minutes past two in the afternoon, and she directs her course under the two first of the Twins. On the 5th, she is seen under the two first of the Twins, and above and near to the fifth of this constellation, which she soon passes. On the 6th, she is seen under the two first of the Twins, and near to the second. On the 7th, she is seen near to the two stars and included nebula of the Crab, and her passage between the two stars is the chief feature of her course, which is directed to the first of the Lion. On the 8th, she is seen under the small stars in the head of the Lion, and nearest to the eleventh, and she will have passed the first before her next appearance. On the 9th, she is seen to the east of and near to the first of the Lion, as she passed this star at four minutes past six this evening. On the 10th, she is seen under and at some distance from the fourth, eighth, and second of the Lion, directing her course under the second of the Virgin.

On the 11th, the Moon is on the meridian at seventeen minutes past eight after noon, having the second of the Lion almost directly above her, and the second of the Virgin near to but to the east of her, under which latter star she passes about midnight. On the 12th, she is on the meridian at fifty-six minutes past eight, having above her the five stars in triangle of the Virgin, the seventh near to the meridian, and the second at a greater distance, both to the west, and the third, fourth, and fifth to the east of it, the first being below her at some distance to the east. On the 13th, she is on the meridian at thirty-five minutes past nine, having the five stars in triangle of the Virgin above her to the west, the fifth being near to it, and the first below her, but she does not pass it for some time after Sun-rise.

On the 14th, the Moon is on the meridian at sixteen minutes past ten at night, having now the first of the Virgin to the west of her, as she passed this star at sixteen minutes past seven in the morning; and above her are the tenth and eleventh of this constellation, the two stars in its feet, the tenth being the highest, and nearest to the meridian. On the 15th, she is on the meridian at eleven, having above and near to it, to the east, the first of the Balance, the second being higher up and at a greater distance from it: she is directing her course to Antarés. On the 16th, she is on the meridian at forty-seven minutes past eleven, having above her to the west the two first stars of the Balance, and to the east above her the second of the Scorpion, below which is Antares; and to the latter star she is directing her course.

On the 17th is full Moon, at six minutes past four in the morning, but from her too great southern latitude without an eclipse. She rises in the evening about an hour after Sun-set, and is soon followed by Antares; and her passage under this star is the chief feature of her course. On the 18th, she rises under Antares, now at some distance from her to the west. On the 19th, she rises with the small stars in the head of the Archer to the east of her, having above her, also to the east, the eleventh and twelfth of this constellation; below and near to her to the west is the third. On the 20th, she rises under the small stars in the head of the Archer to the west of her; and, during the morning of the 21st, is perceived to direct her course to the small stars in the tail of the Goat.

On the 22d, the Moon rises in the morning under the two first stars of the Goat to the east of her. On the 23d, she rises under these stars, now to the west of her. On the 24th, she is perceived to have passed the four small stars in the tail of the Goat, as they rise soon after to the west. On the 25th, she rises under the four small stars in triangle of the Urn. On the 26th, she rises under the four stars in square, and is soon followed by Jupiter and Saturn to the east of her. On the 27th, she is seen to have approached so near to Jupiter, that she will have passed him before her next appearance. On the 28th, she is followed soon after her rising by Saturn, and her recess from this planet and Jupiter is the chief feature of her course. On the 31st is new Moon, at twenty-two minutes past seven in the morning, but from her too great northern latitude without an eclipse.

Mercury is a morning star till the 30th, when he is in his superior conjunction. His latitude, on the 1st, is two degrees fifty-five minutes south, in the sixteenth degree of the first sign; and it decreases to the 26th, when he passes the ecliptick in his ascending node, in the first degree of the third sign; and his northern latitude becomes, on the 31st, forty-seven minutes, in the eleventh degree of this sign, his motion being direct through the whole month. The unfavourableness of his position and southern latitude render him noticeable to few observers; and though these disadvantages are daily decreasing, yet the little advantage thence arising is counterbalanced by the daily decrease of his distance from the Sun. The Moon passes him on the 31st.

Venus is in her superior conjunction on the 23d. Her latitude, on the 1st, is one degree four minutes south, in the fifth degree of the second sign; and it decreases during the whole month, being, on the 25th, fourteen minutes, in the fifth degree of the third sign. The Moon passes her on the 1st, and the 31st.

Mars is a morning star. His latitude, on the 1st, is fifty-one minutes south, in the eighteenth degree of the first sign; and it decreases during the whole month, being, on the 25th, thirty-nine minutes, in the sixth degree of the second sign. The increase of his distance from the Sun, and gradual improvement of his position, render him an object of observation; for at the beginning of the month he is three quarters of an hour above the horizon before Sun-rise, and at the end above an hour and a quarter. At first he is seen under and near to the sixth of the Fishes in the east, Jupiter being to the west of him and Saturn to the east, and Mercury below him to the west. He passes above Saturn on the 5th, and directs his course under the three first stars of the Ram, passing the third, or most western, on the 18th, and the first, the most eastern, on the 25th. The Moon passes him on the 29th.

Ceres is on the meridian about three quarters past one in the morning of the 2d, and at half an hour before one on the 18th. Her latitude, on the 1st, is six degrees thirty-seven minutes north, in the sixth degree of the ninth sign; and it decreases the whole month, being, on the 17th, five degrees fifty-four minutes, in the third degree of this sign, her motion being retrograde through about three degrees and a half. The star (ω), the twenty-first of the Serpent-bearer, is still our directer to her; above which, when this star is on the meridian, she will easily be detected by the telescopick observer. She bends her course towards (θ) the eighth of the Balance, and in the middle, between the two above mentioned stars, and above the second of the Scorpion, when she is on the meridian, she will be detected easily on the 25th; and she finishes her course nearly in a line between the second of the Scorpion and (ψ) the twenty-third of the Balance. The Moon passes her on the 17th.

Jupiter is a morning star, rising about fifty minutes before the Sun on the 1st, and about an hour and three quarters on the 26th. At first he is seen under the fifth and sixth of the Fishes, passing the former star on the 2d, and the latter on the 11th. His gradual approach to Saturn is the chief feature of his course, but he does not reach this planet this month. The Moon passes him on the 27th.

Saturn is a morning star, rising above half an hour before the Sun on the 1st, and an hour and a quarter on the 19th. His latitude, on the 1st, is two degrees sixteen minutes south, in the twentieth degree of the first sign; and it increases continually though slowly, being, on the 25th, two degrees nineteen minutes, in the twenty-third degree of this sign. We shall see him, therefore, in the barren space to the east of the western band of the Fishes, Jupiter being above and to the west of him; and the distance between them is slowly decreasing, both moving the same way. The Moon passes Saturn on the 28th.

Herschel is on the meridian at half past three in the morning of the 4th, and at a quarter past two on the 23d. His latitude, on the 1st, is fourteen minutes south, in the third degree of the tenth sign, and fifteen minutes on the 21st, in the same degree, his motion being retrograde. When on the meridian we shall perceive under and near to him to the east the eleventh of the Archer, and above him, at a much greater distance, the twelfth, to the west; and he slowly recedes from the former star. The Moon passes him on the 20th.

The Moon's apparent diameter, on the 1st at midnight, is thirty-three minutes twelve seconds; and it decreases to the 13th, being, at noon on that day, twenty-nine minutes twenty-six seconds; and it then increases to the 29th, being, at noon on that day, thirty-two minutes fifty-six seconds; and it continues to decrease to the end of the month, being, on the last midnight, thirty-two minutes twenty-two seconds. The Sun's apparent diameter, on the 7th, is thirty-one minutes forty-four seconds; and on the 26th, thirty-one minutes thirty-seven seconds. The Sun enters the third sign on the 21st, at three minutes past eleven in the morning.

The position of the fixed stars may be known by consulting the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

	1		8		16		24	
Pos.	h.	m.	h.	m.	h.	m.	h.	m.
IV.	9	7	8	40				
V.	10	58	10	31	10	0	9	28
VI.	0	54	0	27	11	56	11	24
VII.	2	54	2	27	1	56	1	24
VIII.	4	59	4	32	4	1	3	29
IX.					6	4	5	32

JUNE, 1821.

PERSEUS, Andromeda, Pegasus, Orion, are names familiar to all acquainted with the fables of the Greek mythology; and when we see their figures on our globes we might be led to imagine, that the Greeks were the first who imported them into the heavens. But they were the translaters only of a more antient language, and they transformed the figures of the Babylonian globe to what we now see on it, as well as the names, which the constellations bore in the nation that first introduced figures into astronomy. The Chaldean names sounded uncouth to a Grecian ear. The first figures might also not suit their taste; and thus they have handed down to us a globe, which in its outline has a general resemblance only to that in use on the plains of Chaldea. To bring it back to its original shape is now a hopeless task; yet if, in digging among the ruins of Babylon a brazen globe should be found, it is not unlikely, that from the figures upon it, aided by the signets, we might have a tolerably good representation of the Chaldean sphere, and trace down its various forms to that at the present day in common use amongst us.

Flattery is of very early origin; and if we have seen in our days an astronomer coining a barbarous word from the name of a king to designate a newly discovered planet, we may conclude, that the first persons, who devised figures for their groupes of stars, would not be loth to inscribe on them the name of the reigning sovereign, or some great personage to whom they looked up for patronage. The navigater round the world follows the same plan, and gives to his discovered islands, or promontories, or lakes, or seas, an English name; by which he means to perpetuate the fame, well or ill-deserved, of some of his countrymen. On our globe we have had introduced Cor Caroli and the Shield of Sobieski; for poets are not the only flatterers of the great; science is found at times paying similar homage and adulation.

It was probably some time before the arrangement of the globe was completed. The origin of it might be very innocent. A fancied resemblance to some animal might have first given the name to a group of stars; by degrees other representations might be discovered. The use of marking out the districts in the heavens was then clearly seen, and the representations of kings and gods filled up the picture. During this process idolatry was making great progress; and the fortuneteller and the priest united together their respective arts, by means of which they gained an ample livelihood out of the credulity of their countrymen.

When once the human mind could be so bowed down as to prostrate itself before the Sun, and Moon, and heavenly bodies, it was an easy step to the reverence of their images. That such beings should have an influence over the lives of the infatuated devotees was a point very easy to be swallowed; and this great delusion being once established, which was done probably by very slow degrees, it was natural to conclude, that the persons who led the worship, and who were supposed to be admitted to a greater degree of familiarity with their gods, should be enabled by them to explain the profoundest mysteries. The birth under one planet in a certain situation might be made to signify one thing, in another another, and so on; and thus the students, regularly initiated into the science, would have a language peculiar to themselves, and confirm, without seeing each other, what had been prognosticated on certain appearances by either.

They would also be able at once to explain a signet; and it is not improbable, that, according to the purse of the purchaser, the design and the execution of them would be made more perfect. The Arabs, it is said, to the present day look upon them as amulets, or charms; and the votaries of Baal might probably not think themselves safe without having one about their persons. Thus astronomy, which was intended to raise men to the contemplation of the wonders of the universe and the greatness of the Creater, was converted to the basest of purposes, and the effects of this prostration of mind are felt to the present day. There are persons in this metropolis who follow the trade of the Magi of Babylon; and there are even among those, who profess the Christian religion, too many dupes to their idle impostures. Strange, that men with Bibles in their hands should give credit to these delusions; but this is less to be wondered at when the Bible itself has suffered in the same manner. The book of grace, as I said before, as well as the book of nature, has been made the fruitful source of gainful traffick; and that, which was designed as a blessing to all, has been converted into the means of enriching the few, and of erecting a domination still existing in some parts of Europe, not inferiour to that which once was founded in Babylon on the pretended mysteries of the stars.

What, indeed, may not be made an instrument of delusion? We have another remarkable instance of it in the Cabala of the Jews, by which, from positions of letters, various mysteries are pretended to be discovered, entirely remote from any thing to be derived from the literal sense of the author. The Hebrew language is well adapted to this purpose. Their numbers are marked by the letters of the alphabet, and a number written down may form some expressive word. Hence certain words being converted into numbers may correspond with other words expressive of the same number, and a play is made on words and numbers, which might be amusing enough if certain mysterious meanings were not attached to them. This forms, however, a science with some people, of very difficult acquisition, and on it many an otherwise useful life has been misemployed. The mysteries of the Magi on the heavenly bodies, of the Jews with their Cabala, of Christians even, who deform their Scriptures by names not known to them, prove only how prone the mind is to superstition, and how thankful we ought to be for that light, which our Saviour brought into the world, and which will in due time dispel entirely the darkness of former ages. But I now leave the Babylonian mysteries, and proceed to point out the appearances in the heavens for this month.

The Moon's northern latitude, on the 1st at midnight, is nearly four degrees thirty-three minutes, in the fourth degree of the fourth sign; and it then decreases to the 7th, when she passes the ecliptick in her descending node, soon after midnight of the preceding day, in the ninth degree of the sixth sign. Her southern latitude now increases to the 14th, when it is, at noon, nearly five degrees one minute, in the ninth degree of the ninth sign; and it then decreases to the 21st, when she passes the ecliptick in her ascending node, about four in the morning, in the eighth degree of the twelfth sign. Her northern latitude now increases to the 27th, when it is, at noon, nearly five degrees four minutes, in the seventh degree of the third sign; and it afterwards decreases to the end of the month, being, on the last midnight, nearly three degrees eighteen minutes, in the twenty-sixth degree of the fourth sign.

On the 1st, the crescent of the Moon is seen near the horizon in the north-west, her great northern latitude and rapid motion giving her such a favourable distance from the Sun, that, notwithstanding the short time since the conjunction, she does not set till about two hours after him: she is directing her course under the two first of the Twins. On the 2d, she is seen under the two first of the Twins, which she will have passed before her next appearance. On the 3d, she is seen between the two first of the Twins and the two small stars and included nebula of the Crab. On the 4th, she is seen under the small stars in the head of the Lion, directing her course to the first of this constellation. On the 5th, she is seen near to but to the west of the first of the Lion; but she does not pass this star till after Moon-set. On the 6th, she is seen at some distance to the east of the first of the Lion, as she passed this star at five minutes before two in the morning: she directs her course under the second of the Virgin. On the 7th, she is seen at some distance almost directly under the second of the Lion, having to the east of her the second of the Virgin, which she will have passed before her next appearance. On the 8th, she is under the five stars in triangle of the Virgin, having the second to the west and the seventh much nearer to her to the east, and she is directing her course to the first. On the 9th, the five stars in triangle of the Virgin are above her to the west, and the first below and to the east of her.

On the 10th, the Moon is on the meridian at ten minutes past eight after noon, the first of the Virgin being near to her to the west, as she passed this star at twenty minutes past two this afternoon; above her to the east are the tenth and eleventh of this constellation. On the 11th, she is on the meridian at fifty-two minutes past eight, having almost directly above her the eleventh of the Virgin, and higher up, near to it to the west, the tenth, the first of the Balance being above her to the east, and the first of the Virgin at a much greater distance to the west. On the 12th, she is on the meridian at thirty-eight minutes past nine, having above her the first of the Balance to the west, and the second higher up to the east of it: she is now nearly midway between the first of the Virgin to the west and Antares to the east of her. On the 13th, she is on the meridian at twenty-seven minutes past ten, having almost directly above her the second of the Scorpion, and to the east of her Antares, which she will have passed before her next appearance. On the 14th, she is on the meridian at twenty minutes past eleven, having now Antares to the west of her, as she passed this star at ten minutes past nine this morning.

On the 15th is full Moon, at fourteen minutes past five in the afternoon, but from her too great southern latitude without an eclipse; and this diminishes greatly the duration of her stay above the horizon. She rises nearly with the eleventh of the Archer to the east of her, Antares being now above and at some distance from her to the west. On the 16th, she rises under the small stars in the head of the Archer to the east, and the eleventh and twelfth of this constellation to the west of her. On the 17th, she rises midway nearly under the two first of the Goat to the east, and the small stars in the head of the Archer to the west of her. On the 18th, she rises almost directly under the two first stars of the Goat, but at some distance from them, as they are on the opposite side of the ecliptick. On the 19th, she is followed soon after her rising by the four small stars in the tail of the Goat, and her passage above and from them is the chief feature of her course. On the 20th, she rises under the four small stars in triangle of the Urn. On the 21st, she is in the barren space under the four stars in square, directing her course to Jupiter and Saturn, at a considerable distance to the east of her. On the 22d, she rises under the four stars in square, and is seen to make, before Sun-rise of the 23d, rapid advances towards Jupiter and Saturn.

On the 24th, the Moon rises in the morning, and is soon followed by Jupiter and Saturn to the east of her, whom she will evidently have passed before her next appearance. On the 25th, she is still followed in her rising by the two planets, her northern latitude preponderating, though they are now to the west of her: she rises under the three first of the Ram. On the 26th, she rises under the three first stars of the Ram to the west, and is soon followed by the Pleiades to the east of her; and on the 27th she rises near to these stars to the west of her. On the 29th is new Moon, at fifty-three minutes past three in the afternoon, but from her too great northern latitude without an eclipse.

Mercury is an evening star. His latitude, on the 1st, is fifty-six minutes north, in the thirteenth degree of the third sign; and it increases to the 14th, when it is two degrees north, in the tenth degree of the fourth sign. It then decreases to the 30th, being, on that day, forty-one minutes, in the fourth degree of the fifth sign, his motion being direct during the whole month. At first he is lost in the solar blaze; and the power of the Sun being great at this time, after Sun-set, he will, notwithstanding the length of his stay above the horizon after Sun-set, be noticed by but few observers. He is, on the 10th, more than an hour above the horizon after Sun-set, and this duration increases to above an hour and a half. On the 10th, he is above the seventh and eleventh of the Twins; and on the 12th he passes near to the fifth of this constellation. On the 19th, he is between the fourth and second of the Twins. On the 25th, he is in a line with the two first of the Twins; and he finishes his course near to the two small stars and included nebula of the Crab, to the west of them. The Moon does not pass him this month.

Venus is an evening star. Her latitude, on the 1st, is two minutes north, in the fourteenth degree of the third sign; and it increases during the whole month, being, on the 25th, fifty-six minutes, in the thirteenth degree of the fourth sign. She finds great difficulty in escaping from the superior splendour of the Sun, so that she will be little noticed till the end of the month, and on the last day she is only about three quarters of an hour above but near to the horizon at Sun-set; we shall then see her under the two first stars of the Twins, and nearest to the second. The Moon passes her on the 30th.

Mars is a morning star. His latitude, on the

1st, is thirty-five minutes south, in the eleventh degree of the second sign; and it decreases during the whole month, being, on the 25th, nineteen minutes, in the twenty-eighth degree of the second sign. He is first seen under the three first stars of the Ram to the east of them; and he directs his course under the Pleiades, passing them on the 24th; and he finishes it nearly in a line between them and Aldebaran. The Moon passes him on the 26th.

Ceres is on the meridian about a quarter past eleven at night on the 1st, and at ten on the 16th. Her latitude, on the 1st, is nearly five degrees north, in the thirtieth degree of the eighth sign; and it decreases to three degrees fifty-four minutes, in the twenty-seventh degree of this sign, on the 17th, her motion being retrograde through about five degrees and a half. We shall see her therefore, at first, when on the meridian, almost directly above the second of the Scorpion, but to the west of it, directing her course between (ψ) the twenty-third and (θ) the eighth of the Balance, but nearer to the latter star. This latter star will be a good direction to her between the 9th and the 17th, as she passes between them about the 12th; and she finishes her course under (η) the seventh, but to the east of it, passing between η and θ. The Moon passes her on the 15th.

Jupiter is a morning star, rising, on the 1st, about two hours, and on the 21st about three hours and a quarter before the Sun. His latitude, on the 1st, is seventy minutes south, in the twenty-second degree of the first sign; and it continually increases, being, on the 25th, seventy-four minutes, in the twenty-sixth degree of this sign. His advance towards and passage by Saturn is the chief feature of his course, which is for the most part in the barren space between the eastern and western band of the Fishes; and he finishes it to the east of, but near to the fifteenth of this constellation. On the 19th, he passes Saturn to the north of him, at the distance of seventy minutes. The Moon passes him on the 24th.

Saturn is a morning star, rising, at first, above an hour and three quarters before the Sun, and every succeeding morning earlier. His latitude, on the 1st, is two degrees twenty minutes south, in the twenty-fourth degree of the first sign; and it continually increases, being, on the 25th, two degrees twenty-five minutes, in the twenty-sixth degree of this sign, his motion being direct through nearly two degrees and a half. He is first seen in the barren space between the eastern and western band of the Fishes, nearest to the former band, and directing his course under the fifteenth of this constellation, in the edge of the eastern band. The decrease of the distance every day between Jupiter and Saturn will be striking, as they are in conjunction on the 19th, Jupiter being then above Saturn, at the distance of seventy minutes. The Moon passes Saturn on the 24th.

Herschel is on the meridian at half past one in the morning of the 2d, and at midnight on the 22d. His latitude, on the 1st, is a quarter of a degree, in the second degree of the tenth sign; and it continues nearly the same during the whole month. He is retrograding slowly into the first degree of this sign. When on the meridian we first perceive below him the eleventh of the Archer to the east, and above him the twelfth to the west, both near to it; and at the close of the month the latter star is almost directly above him. The Moon passes him on the 16th.

The Moon's apparent diameter, on the 1st at midnight, is thirty-two minutes; and it afterwards decreases to the 9th, when it is, at midnight, twenty-nine minutes and a half. It then increases to the 25th, during which day it is about thirty-two minutes twenty-eight seconds; and it then decreases to the end of the month, being, on the last midnight, thirty-one minutes eighteen seconds. The Sun's apparent diameter, on the 1st, is thirty-one minutes thirty-five seconds; and, on the 18th, thirty-one minutes thirty-two seconds. The Sun enters the fourth sign at forty minutes past seven after noon of the 21st.

For the appearances of the principal fixed stars, at any hour of the night, consult the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		15		23	
	h.	m.	h.	m.	h.	m.	h.	m.
V.	8	55	8	26	7	57		
VI.	10	51	10	22	9	53	9	20
VII.	0	51	0	22	11	53	11	20
VIII.	2	56	2	27	1	58	1	25
IX.	4	59	4	30	4	1	3	28
X.			6	25	5	56	5	23

JULY, 1821.

"THE heavens declare the glory of God, and the expanse sheweth the works of his hands," says the holy Psalmist; and in this sentiment unites every virtuous mind, in every station of life, and in every quarter of the world. It requires not learning or talents to comprehend this language, which comes home to every heart; and it is often more strongly felt where the machinery of heaven, if I may so term it, is less understood than where the motions of the heavenly bodies are calculated with the nicest precision. The sentiment fills us with the power of the good Creater, and ought to lead us, as the beautiful psalm does whence I made the quotation, to that holy law, which purifies the soul; and, as the Sun illumines the universe, this gives light to all, who would otherwise, in the highest concerns of life, be left to the wanderings of their own imagination.

We have seen how both the heavenly volumes have been and may be perverted. It remains for us to make the proper use of each. Mine is a very humble task. It does not affect to enter into difficult calculations; it does not require from the reader intense application; it calls on him only to open his eyes and see, and admire the endless variety in the appearances of the heavens.

It is of use to refer back occasionally to first principles; and it has been hinted to me, that this would be desirable for the sake of my younger readers. A particular circumstance, which took place last year, and will next year, leads me to recapitulate some things noticed in former volumes.

I lay the basis of my plan in the commonest appearance, the daily course of the Sun in the heavens. Every one must have noticed, that the Sun appears at mid-day higher in the heavens at one season of the year than he does at others; that in the morning he is slowly rising to his utmost height of that day, and as slowly diminishing it as he recedes from his mid-day position. We give the name of south to the point in the horizon, which is found by drawing an imaginary line from the point over our head through the Sun to the horizon; and if we continue that line in the opposite direction we find a similar point, which we call the north. By extending our arms, when we look to the Sun at mid-day, the left arm points us to the east, the right to the west. Thus we have divided our horizon by four points, which we call north, south, east, and west, or the four cardinal points; and by making divisions between two adjacent points we form in the whole thirty-two points, called the points of the compass.

At Sun-rise or Sun-set the Sun rises or sets in one of these divisions, or somewhere between two adjacent ones; and common observation shews, that he rises and sets at different times of the year at different points of the compass: in the summer months he rises always to the north of east, and sets to the north of west; and in the winter months he rises to the south of east, and sets to the south of west. Thus on midsummer day he rises at his greatest distance from the east, and sets at his greatest distance from the west, but to the north of both, and is at noon at his greatest height above the horizon. On midwinter day he rises at the greatest distance from the east, and sets at the greatest distance from the west, but to the south of both points, and is at noon at his lowest height above the horizon. Thus on midwinter day the arc he describes in the heavens is the least; and it daily increases till it becomes the greatest on midsummer day: then his diurnal arc decreases till it becomes the least again on midwinter day, and so on in continual succession, bringing with it the grateful vicissitude of summer and winter, long days and short nights, short days and long nights.

If we observed the shadow of a stick at noon, from midwinter to midsummer, we should perceive, that it daily diminished, and from midsummer to midwinter, that it daily increased. But this decrease and increase are not uniform; and its decrease in the first ten days from midwinter is much greater than its increase in the first ten days from midsummer. Hence he is a shorter time in passing from his lowest height to his height at the vernal equinox than in passing from the vernal equinox to his greatest summer height; and he employs more days in passing from the vernal to the autumnal equinox than he does in passing from the autumnal to the vernal equinox. Consequently we are favoured with more days of summer than our brethren, who live on the southern side of the equator.

This course of the Sun is regular nearly, year by year; and if heat depended solely on the Sun our summers and winters would be uniformly the same; but other circumstances are to be taken into consideration; and though the quantity of heat during the summer months would be always greater in the aggregate than that during the winter months, yet the heat on some days in the winter months will frequently be greater than the heat in as many days in the summer months. This arises from the different states of the medium, through which the solar rays pass; and though their absolute power is greater in summer than in winter, yet that power may be so diminished by the state of the air on certain days of summer as not to produce so great an effect as, with inferior power, it does in some days of winter.

If we were to trace on our celestial globes the apparent path of the Sun for a year, it would form a spiral line of a very curious nature.

The mean distance between the threads would be nearly seven minutes and three quarters; but the spiral of the next year, though similar to it in form, and very near to it, would still not go through the same points; and it would take thousands of years before the Sun's place would be the same as that whence we first set out; or rather I might say that it would never be again in the same place, though after this immense interval of years it would be very near to it. What that number of years is I leave to your conjectures or calculations, and proceed now to the appearances in the heavens for this month.

The Moon passes the ecliptick in her descending node on the 4th, between three and four in the morning, in the sixth degree of the sixth sign; and her southern latitude increases to the 11th at noon, when it is five degrees seven minutes, in the fifth degree of the ninth sign. It then decreases to the 18th, when she passes the ecliptick in her ascending node, between six and seven in the morning, in the sixth degree of the twelfth sign; and her northern latitude increases to the 24th, when it is, at noon, five degrees eleven minutes, in the fourth degree of the third sign. It then decreases to the 31st, when she passes the ecliptick in her descending node, about nine in the morning, in the fifth degree of the sixth sign.

The crescent of the Moon is seen on the 1st, soon after Sun-set, in the west-north-west, near to the two small stars and included nebula of the Crab, and under the small stars in the head of the Lion, directing her course to the first of this latter constellation. On the 2d, she is seen under the small stars in the head of the Lion, now to the west of her, and she will evidently have passed the first before her next appearance. On the 3d, she is seen to the east of the first of the Lion, having passed this star at thirty-one minutes past ten in the morning. On the 4th, she is seen almost directly under the second of the Lion, to direct her course under the second of the Virgin. On the 5th, she is seen under the five stars in triangle of the Virgin, near to the second to the west of her. On the 6th, she is seen under the five stars in triangle of the Virgin, but now nearest to the third, and directing her course under the first. On the 7th, she is first seen to the west of the first of the Virgin, under and near to which star she passes at ten at night. On the 8th, she is seen under the tenth and eleventh of the Virgin, and nearest to the latter star, but she does not pass it till after Moon-set. On the 9th, she is seen under the first of the Balance to the west of her, directing her course to Antares.

On the 10th, the Moon is on the meridian at thirteen minutes past eight in the evening, having the second of the Scorpion above her to the east, and it is evident that she will have passed Antares before her next appearance. On the 11th, she is on the meridian at five minutes past nine, having Antares above and near to her to the west, as she passed this star at ten minutes past five this afternoon. On the 12th, she is on the meridian at fifty-nine minutes past nine, having to the west Antares, and to the east, at a greater distance, the small stars in the head of the Archer. On the 13th, she is on the meridian at fifty-six minutes past ten, having above her to the west the eleventh and twelfth of the Archer, the former star near to her, and to the east the small stars in the head of the Archer. On the 14th, she is on the meridian at fifty-two minutes past eleven, having above her to the west the small stars in the head of the

Archer, and at a greater distance the two first stars in the head of the Goat.

On the 15th is full Moon, at nineteen minutes past four in the morning, but from her too great southern latitude without an eclipse. She rises in the evening under the two first stars in the Goat, and soon after passes them, though, from their being at the opposite side of the ecliptick, at some distance. On the 16th, she rises with the four small stars in the tail of the Goat, but does not reach the most western or the highest of them till about Sun-rise. On the 17th, she rises under the first and second of the Water-bearer, the former to the east and the latter to the west of her; and for the next four nights she rises at little more than a quarter of an hour, on an average, from the time she rose the night before; and she directs her course, through the barren space under the four stars in square, to Saturn and Jupiter. On the 21st, she rises soon after the three first stars of the Ram, and is followed by Saturn about half an hour after, whom she has passed, and sooner by Jupiter, whom she will pass before Sun-rise. On the 22d, she rises about the same time with Jupiter, now to the west of her, and under the three first stars of the Ram nearer to her. On the 23d, she rises with and near to the Pleiades to the east of her, and her passage by these stars is the chief feature in her progress. On the 24th, she rises soon after the Pleiades, now to the west of her; and is seen, during the morning of the 25th, to direct her course to the second of the Bull, and Mars.

On the 26th, the Moon rises in the morning under Mars and the second of the Bull to the west of her, as she passed this star at sixteen minutes past five in the preceding afternoon. On the 27th, she rises with the first of the Twins to the east of her, and is followed by the third to the west of and near to her; and on the 29th is new Moon, at twelve minutes past two in the morning, but from her too great northern latitude without an eclipse.

Mercury is an evening star, stationary on the 18th, and at his greatest elongation on the 4th. He passes the ecliptick in his descending node on the 4th, in the ninth degree of the fifth sign; and his southern latitude increases during the remainder of the month, being, on the last day, four degrees fifty-six minutes, in the eleventh degree of the fifth sign. His stationary point is in the seventeenth degree of this sign. The duration of his stay above the horizon, on the 1st, is nearly an hour and a half; but it decreases to about an hour on the 11th, and more rapidly afterwards. On the 1st, he will be seen near to the fourth of the Crab and the nebula, the former being to the west of him and the latter below him. They, who are fortunate enough to mark him on this day, will easily on future evenings trace him in the barren space between the Crab and the Lion, though they will probably lose him before he becomes stationary under the eleventh of the latter constellation, the lowest of the small stars in its head. The Moon passes him on the 1st, and again on the 29th.

Venus is an evening star. Her latitude, on the 1st, is sixty-six minutes north, in the twentieth degree of the fourth sign; and it increases till nearly the end of the month, being, on the 25th, a degree and a half, in the twentieth degree of the fifth sign. She will be at first seen, for a short time after Sun-set, near the horizon in north-west-by-west, under the Twins, the duration of her stay increasing, but not amounting to an hour the whole month. She directs her course between the two small stars of the Crab, the third and fourth, and her passage by the nebula on the 13th and 14th will be interesting. She thence directs her course to the first of the Lion, passing under the eleventh, the lowest of the small stars in his head, on the 21st; and she finishes it above and near to the first of the Lion. The Moon passes her on the 30th.

Mars is a morning star. His latitude, on the 1st, is a quarter of a degree south, in the second degree of the third sign; and it decreases till the 19th, when he crosses the ecliptick in his ascending node, in the fifteenth degree of this sign; and his northern latitude increases to the end of the month, being, on the 25th, three minutes, in the nineteenth degree of the same sign. He is first seen between the Pleiades and Aldebaran, and directs his course between the horns of the Bull, passing Aldebaran on the 8th, below the second of the Bull on the 27th, and above the sixth on the 29th. The Moon passes him on the 25th.

Ceres is on the meridian at twenty minutes past nine at night on the 1st, and every succeeding evening earlier; so that we shall lose the opportunity of seeing her in this situation. Her latitude, on the 1st, is two degrees fifty-five minutes north, in the twenty-sixth degree of the eighth sign; and it decreases to one degree fifty-four minutes, in the twenty-fifth degree of this sign on the 17th, her motion being first retrograde into, and then direct from this degree. She is first seen under (η) the seventh of the Balance, but to the east of it, and, slowly going almost under it, she returns, directing her course below (λ) the eleventh, and between (β) the second and (δ) the fourth of the Scorpion, but she finishes it to the west of the former star. The Moon passes her on the 10th.

Jupiter rises about midnight on the 4th, and at three quarters past ten at night on the 24th. His latitude, on the 1st, is a degree and a quarter south, in the twenty-seventh degree of the first sign; and it continually increases, being, on the 25th, eighty-one minutes, in the thirtieth degree of this sign. His recess from Saturn is the chief feature of his course, which is directed under the three first stars of the Ram to the east of him, but he does not pass the most western of them this month. The Moon passes him on the 22d.

Saturn rises at midnight on the 4th, and every succeeding evening earlier, rising on the 20th at eleven. His latitude, on the 1st, is two degrees twenty-six minutes south, in the twenty-sixth degree of the first sign; and it constantly increases, being, on the 25th, two degrees thirty-two minutes, in the twenty-seventh degree of this sign, his motion being direct. He is seen at first near to and to the east of the fifteenth of the Fishes, the small star in the eastern band, having Jupiter near to and above him to the east, but their distance from each other is daily increasing; the three first stars of the Ram are above them to the east, and Saturn moves little more than a degree while Jupiter is moving more than three degrees in the same direction. The Moon passes Saturn on the 21st.

Herschel is on the meridian at eleven at night on the 5th, and at ten on the 20th. His latitude, on the 1st, is a quarter of a degree south, in the first degree of the tenth sign; and it continues nearly the same the whole month. On the

21st he enters the last degree of the ninth sign, his motion being retrograde. During this month we have an easy way of discovering him, as he is, when on the meridian, at first almost directly under the twelfth of the Archer, and at the end of it, from his slow motion, this star will be above him, and very near to it to the east. The Moon passes him on the 13th.

The Moon's apparent diameter, on the 1st at midnight, is thirty minutes fifty-four seconds; and it decreases to the 7th, during which day it is about twenty-nine minutes thirty-four seconds. It then increases to the 20th, during which day it is thirty-two minutes twenty seconds; and it then decreases to the end of the month, being, about nine at night, half a degree. The Sun's apparent diameter, on the 1st, is thirty-one minutes thirty-one seconds; and on the 22d thirty-one minutes thirty-three seconds. The Sun enters the fifth sign on the 23d, at thirty-two minutes past six in the morning.

The positions of the fixed stars, at any hour of the night, may be known by referring to the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		16		25	
	h.	m.	h.	m.	h.	m.	h.	m.
VI.	8	47	8	18	7	46	7	10
VII.	10	47	10	18	9	46	9	10
VIII.	0	52	0	23	11	51	11	15
IX.	2	55	2	26	1	54	1	18
X.	4	50	4	21	3	49	3	13
XI.			6	22	5	50	5	14

AUGUST, 1821.

THE Sun employs a year in describing the curious spiral I mentioned last month; and what we have noticed respecting this majestick orb may be perceived in some degree similar to it in the path of the Moon. I mention similarity, but as to sameness, that is not to be found in the works of nature. These are infinitely varied, and it is not given to mortal man by searching to find out God, or the excellence of his works. We see but a little; and the little, that we do see, is sufficient to baffle the researches of the wisest of men. They tend, however, to raise in the pious mind the highest reverence of him, whom the Heaven of Heavens cannot contain; and this is sanctified by the reflection, that, if his greatness is unsearchable his goodness is commensurate with it, and of that goodness all are equal partakers, who aim at a resemblance with him in this best quality of our nature.

We have contemplated the Sun in his risings and settings, and variations of his noon-day heights. The same things strike us in the appearances of the Moon, whose revolution is performed in a much smaller space of time, and whose variations in meridional heights on two successive nights are much greater than those of the Sun. As the Sun has its midwinter noon height and midsummer noon height, and the difference between them is about forty-seven degrees, so the Moon has its corresponding greatest and least meridional heights in the course of a month. As the Sun rises and sets at different points of the compass, from its greatest distance south of the east and west points to its greatest distance north of those points in the course of the year, so the Moon in the course of a month rises and sets at different points of the compass, from its greatest distance south of the east and west points to its greatest distance north of those points. These distances from the two points are greater in the Moon than in the Sun; and the interval between the two points, on which the Moon rises on two successive nights, is far greater than that between the two points on which the Sun rises on two successive days.

Hence if upon a globe we should trace the Moon's path as it appears to us in the heavens every night, from its least to its greatest meridional height, and vice versâ, every month, we should have a spiral, as we had with the Sun, but of a very different form. The interval between the threads would not only be much greater, but in different months the distance between its least and greatest meridional heights would be very different.

I perceive in writing this, that I am in danger of leading some persons into a mistake: for they might take a celestial globe, and mark the path upon it, which would make it appear as if the Sun and Moon made the whole round upon it in the course of a day, passing by the stars delineated upon it in their course. But we are speaking of the path they appear to us to describe in the heavens, which ought to be represented on a hollow globe, the eye being in the centre, and without any constellations upon it. A line, drawn from the eye to the Sun or Moon during their daily or nightly course, would mark a line upon this globe, which we call the daily or nightly path of these objects. It is the path they appear to describe in our visible heaven:

but, as referred to the stars, they have paths of a very different nature, and very dissimilar from each other. That of the Sun is represented by the ecliptick, that of the Moon is not marked down, as it varies every month, and would too much perplex our globes.

The arc described in the heavens by a full Moon' from its rising to its setting, differs very much in different years. This arc is always greater in winter than in summer; and if the Moon moved in the ecliptick, then the time of its duration above the horizon would always be greater than that of the Sun when in the same place. But the length of this duration is increased by another cause. The Moon does not move in the ecliptick, but is sometimes north at other times south of it; so that, should she be north of it at full Moon at midnight on midsummer day, the length of her duration above the horizon would be much greater than that of the longest day in summer. On the contrary, should it be full Moon on midsummer day at midnight, and the Moon be then considerably south of the ecliptick, the length of her duration above the horizon would be shorter than that of the longest day in summer.

Now the Moon's greatest distance from the ecliptick in a month is about five degrees, either to the north or south of it. Consequently on midwinter day the Moon, at one time of its period of between eighteen and nineteen years, may be at full at midnight of that day, and five degrees at that time north of the ecliptick; but in another period it may be at full at midnight on that day, and five degrees south of it. Hence the meridional height of the Moon on the latter day will be ten degrees less than it was on the former day. This makes a material difference in the duration of moonlight on these days; on the one it will be much greater than the time of the longest day in summer, and on the other much less. Thus the quantity of moonlight at different times will vary very considerably; and this difference may be increased from another cause.

The Moon varies very much in its motion. At one time it moves in its orbit at the rate of about twelve degrees in the twenty-four hours, at another at the rate of fourteen degrees in that time. Hence if, when on midwinter day the Moon at full should be five degrees north of the ecliptick, and its motion at the rate of fourteen degrees in the twenty-four hours, and at another time on the same day it should be five degrees south of the ecliptick, and moving at the rate of only twelve degrees in the twenty-four hours, the nightly lunar arc in the former case would be much greater than the nightly lunar arc in the latter case.

This may be easily shown on a globe. Let the Moon's place be in the twenty-fourth degree of the third sign, with a latitude of five degrees north, increasing first, and then decreasing, so as to be five degrees north from the ecliptick also at Moon-set, and let it move at the rate of fourteen degrees in the twenty-four hours: then if we put a mark for the Moon, in her place on the globe, and bring this mark to the horizon on the east, by turning the globe to the west, then, by means of the dial plate, we shall know the time when this mark comes to the horizon, which would be the time between Moon-rise and Moon-set. But during these hours the Moon will have advanced in its orbit at the rate of fourteen degrees in the twenty-four hours. We must find therefore how far she will have gone in the time pointed out by the dial plate, and from that time we shall find the place where the

Moon is at the end of this time. It has this arc to describe before it sets, and the dial plate will tell us the time the mark takes up to go through this arc. But during this latter time the Moon will have moved farther eastward, and we must place another mark to the east, and by means of the dial tell when this mark sets; and this operation you may continue as long as you please, and thus obtain the time that the Moon is above the horizon on that day. The same may be done for the Moon when she rises at midnight of mid-winter day, at full, in the same degree of the same sign, but with a southern latitude of five degrees, and a motion of twelve degrees only in the twenty-four hours; and thus you will see how great is the difference between the time of moonlight on these two nights. Leaving you to perform these operations, I proceed to point out the appearances in the heavens during this month.

The Moon's latitude, on the 1st at midnight, is one degree forty-six minutes south, in the twenty-fifth degree of the sixth sign; and it increases to the 7th at midnight, when it is five degrees and a quarter, in the seventh degree of the ninth sign. It then decreases to the 14th, when she passes the ecliptick in her ascending node, about two in the afternoon, in the fifth degree of the twelfth sign. Her northern latitude now increases to the 20th at midnight, when it is five degrees sixteen minutes, in the seventh degree of the third sign; and it afterwards decreases to the 27th, when she passes the ecliptick in her descending node, about five in the afternoon, in the fifth degree of the sixth sign. Her southern latitude now increases to the end of the month, being, on the last midnight, four degrees nine minutes, in the twenty-seventh degree of the seventh sign.

The crescent of the Moon is seen, on the 1st, under and near to the second of the Virgin, but she does not reach this star till after midnight. On the 2d, she is seen under the five stars in triangle of the Virgin, nearest to the third of this constellation, and directing her course under the first. On the 3d, she is seen under the first of the Virgin to the west of her, but she does not pass this star till after midnight. On the 4th, she is seen under the tenth and eleventh of the Virgin to the east, and the first to the west of her. On the 5th, she is seen under the first of the Balance, passing this star about midnight. On the 6th, she has above her to the west the first of the Balance, and to the east the second of the Scorpion, directing her course to Antares. On the 7th, she has above her to the west the second of the Scorpion, and to the east Antares; and her great southern latitude will be noticed by her position with respect to those stars, as will, in consequence, the shortness of her stay above the horizon after Sun-set. On the 8th, she is seen to the east of Antares, and at some distance from this star, having passed it at forty-seven minutes past one in the morning.

On the 9th, the Moon is on the meridian at forty-two minutes past eight at night, having below her and near to it to the west the third of the Archer, and above her, also near to it but to the east, the twelfth of this constellation; and she directs her course under the eleventh. On the 10th, she is on the meridian at thirty-nine minutes past nine, being under the small stars in the head of the Archer near to it to the west. On the 11th, she is on the meridian at thirty-six minutes past ten, having above her and near to it to the east the two first stars of the Goat, and below her at some distance to the west the small stars in the head of the Archer. On the 12th, she is on the meridian at thirty-one minutes past eleven, having to the east of her the four small stars in the tail of the Goat, which she will have passed before her next appearance.

On the 13th is full Moon, at eight minutes past two in the afternoon, but from her too great southern latitude without an eclipse. In the evening she rises under the second of the Water-bearer, and is soon followed by the small stars in the tail of the Goat, near to her to the west. On the 14th, she rises under the small stars in triangle of the Urn; and for the next four nights rises at little more than a quarter of an hour after the time that she rose the preceding night. The cause of this will be easily explained by the instructers of astronomy to their pupils, and has frequently been noticed in the preceding volumes. She pursues her course, in the barren space under the four stars in square, towards Saturn and Jupiter. On the 17th, she forms a pleasing group with Saturn and Jupiter, both being at opposite sides of the ecliptick to her; and she passes the former planet about Sun-rise, and the latter before her next appearance. On the 18th, she is followed soon after her rising by Saturn and Jupiter, both being to the west of her, and she rises under the three first stars of the Ram, forming with them and the two planets an interesting object, and directing her course to the Pleiades. On the 19th, she rises soon after Jupiter and Saturn to the west of her, and is soon followed by the Pleiades to the east of her, but she does not reach the latter stars till after Sun-rise. On the 20th, she rises soon after the Pleiades to the west of her, and is seen to direct her course to the second of the Bull. On the 21st, she rises with and near to the second of the Bull, which she passes at fifty-nine minutes past ten, and bends her course above Mars and under the two first of the Twins. On the 22d, she rises with the two first of the Twins to the east of her; she passes Mars, who is on the opposite side of the ecliptick to her, but does not pass the fifth of this constellation till after Sun-rise of the 23d.

On the 24th, the Moon rises in the morning with the second of the Twins to the east of her, and Mars to the west of her, having just passed the first, and passing the second about Sun-rise. On the 25th, she rises under the two first of the

Twins to the west of her, and is soon followed by the two small stars and included nebula of the Crab; and on the 27th is new Moon, at seventeen minutes past three in the afternoon, when the Sun suffers an eclipse, invisible in this country, but it is central on the meridian at thirteen minutes and a half past three in the afternoon, in west longitude forty-eight degrees twenty-two minutes and a half, and in north latitude fourteen degrees forty-three minutes and a quarter.

On the 30th, the crescent of the Moon is seen near the horizon, to west of west-south-west, soon after Sun-set, having the first of the Virgin to the east of her, her slow pace since the conjunction, and unfavourable position of the eclip-tick, giving her but a short duration, considering the time from new Moon, above the horizon after Sun-set. On the 31st, she is seen to the west of the first of the Virgin, having passed this star at thirty-two minutes past one after noon; but as she has been and is bending her course from the ecliptick southwards, her height above the horizon at Sun-set is still small.

Mercury is in his inferior conjunction on the

2d, and consequently a morning star after that time, stationary on the 11th, and at his greatest elongation on the 19th. His latitude, on the 1st, is four degrees fifty-four minutes south, in the tenth degree of the fifth sign; and it decreases to the 23d, when he passes the ecliptick in the twelfth degree of the fifth sign. His northern latitude increases to the end of the month, and is on the last day one degree twenty-eight minutes, in the twenty-sixth degree of the fifth sign. His stationary point is in the fifth degree of the fifth sign; and having receded to this point he moves forwards with a direct motion. At first he is absorbed in the solar rays; but by his retrograde motion he would, if it were not for his southern latitude, soon emerge from them. The acute observer will see him on the 11th, when he is an hour above the horizon before Sun-rise, under the two stars and included nebula of the Crab, and he passes under the fourth, or lowest of these stars, on the 16th; and on the day of greatest elongation he is still under that star, which will be a sufficient guide to him. He is directing his course above the first of the Lion. The Moon passes him on the 26th.

Venus is an evening star. Her latitude, on the

1st, is a degree and a half north, in the twenty-ninth degree of the fifth sign; and it decreases during the whole month, being, on the 25th, sixty-four minutes, in the twenty-eighth degree of the sixth sign. The duration of her stay above the horizon after Sun-set is not an hour, and she is very near the horizon. At first she is near to the first of the Lion to the west of her, and she directs her course in the barren space of the Lion to the second of the Virgin, passing above the seventeenth of the former constellation on the 6th, the twenty-second on the 12th, under the twenty-first on the 15th, and above the second of the Virgin on the 23d, finishing her course to the east of the seventh of this constellation. The Moon passes her on the 29th.

Mars is a morning star. His latitude, on the 1st, is nine minutes north, in the twenty-fourth degree of the third sign; and it continually increases, being, on the 25th, twenty-nine minutes, in the tenth degree of the fourth sign. He is first seen under the second of the Bull, above and nearer to the sixth below him, both to the west of him. He directs his course to the fifth of the Twins, passing above the seventh on the 12th, and the twelfth on the 15th, and under the fifth on the 22d; and he finishes his course, having below him the sixth to the west and the fourth to the east. The Moon passes him on the 23d.

Ceres is an evening star. Her latitude, on the 1st, is one degree six minutes north, in the twenty-seventh degree of the eighth sign; and it decreases to the 25th, when she passes the ecliptick in her descending node, in the first degree of the ninth sign, her motion being direct through about four degrees. We have a good direction to her at first in (λ) the eleventh of the Balance, from which she is little more than a degree and a quarter distant to the west, passing above it on the 11th, and directing her course under (β) the second of the Scorpion, passing between this star and (δ) the fourth on the 25th, and finishing her course under (β) the second to the west of her. The Moon passes her on the 7th.

Jupiter rises about a quarter past ten at night on the 1st, and at three quarters past eight on the 25th; and he is on the meridian about Sun-rise on the 9th, and every succeeding morning earlier. His latitude, on the 1st, is eighty-two minutes south, in the thirtieth degree of the first sign; and it continually increases, being, on the 25th, eighty-eight minutes, in the first degree of the second sign, in which he is stationary on the 19th. We shall therefore see him near the same spot during the whole month, having, when on the meridian, the three first stars of the Ram above him, the first near to it to the east, and the second and third near to it to the west, Saturn being below and near to him to the west. The Moon passes him on the 18th.

Saturn rises about a quarter past ten at night on the 1st, and at nine on the 21st. His latitude, on the 1st, is two degrees thirty-four minutes south, in the twenty-seventh degree of the first sign; and his motion eastward is very slow, as he becomes stationary in this degree on the 10th, after which his motion is retrograde, and his latitude on the 25th is two degrees forty-one minutes south, in the same degree. He will therefore be seen, during the whole month, near the same place, under and near to the fifteenth of the Fishes. Jupiter being to the east of him, the distance between them slowly increases at first; but as Jupiter is retrograde after the 19th, the distance between them will again slowly diminish. The Moon passes Saturn on the 18th.

Herschel is on the meridian at a quarter past nine at night on the 2d, and at eight on the 20th. His latitude, on the 1st, is fifteen minutes south, in the thirtieth degree of the ninth sign; and it continues nearly the same the whole month; and he retrogrades in this degree, though he does not reach the twenty-ninth degree. We shall continue therefore to have the twelfth of the Archer as our guide to this planet, as, when on the meridian, he is under this star, which star is very near to the meridian to the east. The Moon passes him on the 10th.

The Moon's apparent diameter, on the 1st at midnight, is twenty-nine minutes forty-eight seconds; and it decreases to the 4th, during which day it is about twenty-nine minutes thirty-two seconds. It then increases to the 16th, during which day it is about thirty-two minutes forty-four seconds; and it afterwards decreases to the end of the month, being, on the last midnight, twenty-nine minutes twenty-eight seconds. The

Sun's apparent diameter, on the 1st, is thirty-one minutes thirty-five seconds; and, on the 19th, thirty-one minutes forty-one seconds. The Sun enters the sixth sign on the 23d, at one minute past one after noon.

The position of the fixed stars may be known by consulting the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		16		25	
	h.	m.	h.	m.	h.	m.	h.	m.
VII.	8	42	8	15	7	45	7	12
VIII.	10	47	10	20	9	50	9	17
IX.	0	50	0	23	11	53	11	20
X.	2	45	2	18	1	48	1	15
XI.	4	46	4	19	3	49	3	16
XII.					5	55	5	22

SEPTEMBER, 1821.

AFTER the eclipse of the Sun, which took place in this month last year, a circumstance was noticed by a few persons, for which they could not easily account: and this was, that they did not see the Moon for a much longer time after the new Moon than was usual. The cause not being apparent, this was attributed, in some way for which they could not account, to the eclipse. But the eclipse had nothing to do with it, and the cause was to be discovered at once by any one, who considered the place of the Moon at the time of the eclipse, her motion in her orbit, the position of that orbit, and the position of the eclíptick. Now as there were four things, not one of which probably had been thought of, it is not wonderful, that they jumped at once into the conclusion, that the Moon was labouring under some ill effects of the eclipse. This is not unusual in the judgments formed by mankind. The errour was innocent; and happy it would be for us, if in our erroneous judgments formed of each other for difference of opinions, our difficulties could be as easily solved. The eclipse had no more to do with the early setting of the Moon after Sun-set for several successive nights than it had with the proceedings against the Queen, the pleadings against whom commenced with a thunder storm and ended with the eclipse; not inaptly indeed calculated to represent the blustering language of the prosecuter in the first instance, and in the latter the deficiency of proof of his indecent and exaggerated assertions.

The eclipse took place soon after noon. The Moon was then approaching to her descending node, which she passed early in the morning of the 8th. The position of the ecliptick was nearly the most unfavourable possible at Sun-set for that and the following nights. Consequently at Sun-set on the first and second nights after the eclipse, the Moon, supposing her motion to have been favourable, and her latitude the greatest north, could scarcely have been seen by a keen observer. But, the latitude being south, she was too near the horizon on the second night to have been visible. On the third night her distance from the Sun had increased, but then her southern latitude had increased also, so that she would be still near the horizon at Sun-set. On the fourth night, however, her distance from the Sun having increased so much, we might expect to have seen her for some time above the horizon after Sun-set; but at that time her southern latitude had increased to nearly two degrees and a half, and the position of the ecliptick had become more unfavourable by the motion of the Sun since the eclipse.

Thus we have causes conspiring sufficient to make the height of the Moon at Sun-set above the horizon much less than it is in many months four days after the conjunction. Another cause rendered this height still less. The motion of the Moon was much less than her average motion. On the day of the eclipse it moved at a less rate than twelve degrees in longitude for the twenty-four hours, or at a less rate than half a degree an hour, and it was not till the fifth day that she moved at this rate. Thus all the causes conspired together at this time to make her height above the horizon at Sun-set small on the fourth day, and consequently her stay above the horizon after Sun-set much less than usual. These causes were, slowness of motion in her orbit, unfavourableness of the position of the ecliptick, and an increasing southern latitude.

From the concurrence of these causes her height above the horizon at Sun-set on the 10th, i.e. on the fourth day after the conjunction, was only about five degrees; and on the 11th, i.e. on the fifth day after the conjunction, it was only about eight degrees.

I have been particular upon this case, because it makes a remarkable feature in the state of the Moon's appearance at certain times in her period of between eighteen and nineteen years: and for this reason I beg leave to recommend it to the teachers of astronomy, that they may by an easy process explain it to their pupils. For this purpose two small round pieces of card may be taken, the one red to represent the Sun, the other white to represent the Moon. The red mark may be placed on the degree of the ecliptick in which the Sun was at Sun-set on the 7th of last September, and the white mark on the Moon's place in the zodiack at that time. Bring the red mark to the western horizon of the globe, and the white mark will show the place of the Moon at Sun-set, and her height above the horizon. Do the same for the 8th, 9th, 10th, and 11th days in succession, and thus the slow increase in the height of the Moon above the horizon at Sun-set of these days will be very perceptible. Thence their pupils will see with ease the nature of what we call the unfavourableness of position, slow motion, and southern latitude.

But to make it still clearer we may suppose, that the conjunction took place at the same time, but the Moon was in her ascending node, and her latitude increased in the same manner as before each day, but it was north. Also, instead of moving at the slow rate she did at the eclipse, let the motion in longitude during the twenty-four hours of each day be fourteen degrees. The red mark, as before, being brought to the western horizon, will shew the place at Sun-set of the Moon for each day; and thus we may see how, in even an unfavourable position, the height of the Moon at Sun-set will be much greater than before, from her northern latitude and greater motion in her orbit.

As the means of finding the Sun and Moon's places on the above days may not be at hand with all my readers, and the experiment is both amusing and instructive, I have here set them down.

Sun's places on the 7th and following days of September, 1820, at Sun-set.

7th, in the fifteenth degree of ♍, the sixth sign.
8th, in the sixteenth.
9th, in the seventeenth.
10th, in the eighteenth.
11th, in the nineteenth.

Moon's places on these days at the same time.

7th, in the seventeenth degree of ♍, the sixth sign.
8th, in the twenty-ninth of the same sign.
9th, in the eleventh degree of ♎, the seventh sign.
10th, in the twenty-third of the same sign.
11th, in the fifth degree of ♏, the eighth sign.

Moon's latitude on the above days, at Sun-set.

7th, about half a degree north.
8th, about half a degree south.
9th, somewhat more than a degree and a half south.
10th, about one degree and a half south.
11th, about two degrees and a half south.

Leaving you to try this experiment on the globe, and to judge of its effects by your own eyes, I proceed to notice the appearances in the heavens in this month.

The Moon's latitude increases to the 3d, at midnight, when it is five degrees sixteen minutes, in the third degree of the ninth sign; and it then decreases to the 11th, when she passes the ecliptick in her ascending node, very soon after midnight of the preceding day, in the fifth degree of the twelfth sign. Her northern latitude now increases to the 16th, when it is at midnight five degrees and a quarter, in the fourth degree of the third sign; and it decreases afterwards to the 23d, when she passes the ecliptick in her descending node, about eleven at night, in the fifth degree of the sixth sign. Her southern latitude afterwards increases to the end of the month, being, on the last midnight, five degrees nine minutes, in the twenty-ninth degree of the eighth sign.

On the 1st, the Moon is seen under the tenth and eleventh of the Virgin, and almost directly under the latter star, directing her course to Antares. On the 2d, she is seen under the two first stars of the Balance, the first being to the west of her, and the second almost directly above her: her great southern latitude places her near to the horizon even at Sun-set, and this is increasing. On the 3d, she is seen under the second of the Scorpion, having the fourth almost directly above her, and the seventeenth near to her to the east. She will evidently have passed Antares before her next appearance. On the 4th, Antares is seen to the west of the Moon, as she passed this star at four minutes past ten in the morning.

On the 5th, the Moon is on the meridian at thirty-six minutes past six, having below and near to her to the east the third of the Archer, Antares being now at some distance from her to the west. We cannot but notice how small her meridional height is, being nearly five degrees less than that of the Sun on the shortest day, and her stay above the horizon is proportionally smaller. On the 6th, she is on the meridian at thirty-two minutes past seven, having above her to the east the small stars in the head of the Archer, and to the west the eleventh and twelfth of this constellation, the former nearest to her. On the 7th, she is on the meridian at twenty-eight minutes past eight, being in the barren space between the Archer and the Goat, having the smaller stars in the head of the former constellation above her to the west, and the two first of the latter above her, and at a greater distance to the east. On the 8th, she is on the meridian at twenty-three minutes past nine, having the two first of the Goat above her to the west, and the four small stars in the tail, to which she is directing her course, to the east of her. On the 9th, she is on the meridian at seventeen minutes past ten, having under and near to her the four small stars in the tail of the Goat, and her passage by them is the chief feature in her course. On the 10th, she is on the meridian at eight minutes past eleven, having almost directly above her the four stars in triangle of the Urn. On the 11th, she is on the meridian at a minute before midnight, and the Moon is full at twenty-one minutes past eleven, but with too great a northern latitude for an eclipse. Above her are the four stars in square, to the east the two eastern, to the west the two western, and at a considerable distance from her to the east are Saturn and Jupiter, above which planets her course is directed.

On the 12th, the Moon rises under the four stars in square, being almost directly under the highest of them, the second of Pegasus; the lowest, the third of Andromeda, being nearest to her to the east. On the 13th, she rises soon after the three first stars of the Ram to the east of her, and with them Saturn and Jupiter will, during her stay above the horizon, make a beautiful group. On the 14th, she rises under the three first stars of the Ram, nearest to the third, the most western of them, and is soon followed by Jupiter and Saturn, now to the west of her, the group of the preceding day being very considerably changed in its appearance. On the 15th, she rises below the three first stars of the Ram to the west of her, and is soon followed by the Pleiades to the east of her.

The horizon, from the east to the north-east, presents in succession Saturn, Jupiter, the three first of the Ram, the Moon, and the Pleiades, all in the lower part of the lower region. On the 16th, she rises with and near to the Pleiades to the west of her, and directs her course from them to the second of the Bull. On the 17th, she rises after the Pleiades at some distance to the west, and is soon followed by the second of the Bull near to her to the east, and her progress to and passage by this star before Sun-rise is the chief feature in her course, which is directed between the two first of the Twins and Mars, at a considerable distance from her to the east. On the 18th, she rises soon after the second of the Bull, now to the west of her, and is soon followed by the two first of the Twins, under which is Mars, to the east of her. On the 19th, she rises under the first of the Twins to the east of her, and is soon followed by the second; and during the morning of the 20th we may admire the group formed by her, the two first of the Twins, and Mars, the planet being the most to the east.

On the 21st, the Moon rises in the morning under the two first stars of the Twins and Mars to the west of her. On the 22d, she rises with the small stars in the head of the Lion to the east of her, the two first of the Twins and Mars being now at some distance from her to the west. On the 23d, she rises under the small stars in the head of the Lion, and is soon followed by the first, directing her course under the latter star, which she does not pass till after Sun-rise. On the 24th, she rises under the first of the Lion, now to the west of her; and on the 26th is new Moon, at six minutes past seven in the morning, but from her too great southern latitude without an eclipse.

On the 29th, the crescent of the Moon will be seen under the first of the Balance; but though it is long since the new Moon she is, from her southern latitude and unfavourable position, near the horizon at Sun-set, and the duration of her stay above it after that time is not three quarters of an hour. On the 30th, she is perceived to have moved very slowly since her last appearance, for her average motion since the new Moon has been less than twelve degrees in the twenty-four hours, and her southern latitude has been increasing, so that the duration of her stay above the horizon is little more than an hour.

Mercury is in his superior conjunction on the 14th, and of course after that time an evening star. His latitude, on the 1st, is one degree thirty-three minutes north, in the twenty-seventh degree of the fifth sign; and it decreases to the 30th, on which day he passes the ecliptick in his descending node, in the twentieth degree of the seventh sign, his motion being direct during the whole month. On the 1st, he is above an hour above the horizon before Sun-rise, and he passes the first of the Lion, at the distance of sixty-six minutes from the star, and to the north of it. He will be soon lost to those, who have thus discovered him, and after the conjunction the unfavourableness of his position places him so near the horizon at Sun-set, that he will not be easily detected by any observer. The Moon passes him on the 27th.

Venus is an evening star. Her latitude, on the 1st, is fifty minutes north, in the sixth degree of the seventh sign; and it decreases to the 19th, when she passes the ecliptick in her descending node, in the twenty-eighth degree of this sign; and her southern latitude increases to the end of the month. She is first seen under and near to the third of the Virgin, which she passes on the 2d; and she directs her course above the first, which she passes on the 13th, and directs her course under the tenth and eleventh, passing near to the latter star on the 25th; and she finishes her course under and near to the first of the Balance to the west of it. The Moon passes her on the 29th.

Mars is a morning star. His latitude, on the 1st, is thirty-five minutes north, in the fourteenth degree of the fourth sign; and it increases continually, being, on the 25th, fifty-eight minutes, in the twenty-ninth degree of the fourth sign. He is seen first to the west of the fourth of the Twins, above and near to which star he passes on the 5th, and he directs his course under the two first of the Twins, passing the second on the 12th, to the nebula in the Crab, which he does not reach this month. The Moon passes him on the 20th.

Ceres is an evening star. Her latitude, on the 1st, is sixteen minutes south, in the second degree of the ninth sign; and it increases, being, on the 17th, forty-eight minutes, in the seventh degree of this sign, her motion being direct through about eight degrees and a half. She is first seen under (β) the second of the Scorpion to the east of it, and she directs her coure to (θ) the eighth of the Serpent-bearer; and on the 17th we have a good guide to her in (ω) the twenty-fourth of the Scorpion, the small star between four and five degrees above Antares; between this star (ω) and a small one called 9 she will be discovered, and her passage thence may be traced under ω; and she then travels in a barren space, through which her track must be noted by passage by telescopick stars. The Moon passes her on the 4th.

Jupiter rises about eight o'clock at night on the 6th, and at three quarters past six on the 26th, being on the meridian at ten minutes past three in the morning of the 2d, and at two on the 19th. His latitude, on the 1st, is a degree and a half south, in the thirtieth degree of the first sign; and it continually increases, being one degree four minutes, in the twenty-ninth degree of this sign, on the 25th, and his motion is slowly retrograde. He rises at first with

Saturn to the west of him, under the three first stars of the Ram to the east of him, and when on the meridian is seen under these stars, the two western being directly above him at the end of his course, the chief feature of which is his slow return to Saturn to the west of him. The Moon passes him on the 14th.

Saturn is on the meridian at fifty-eight minutes past two in the morning of the 2d; and he rises about eight at night on the 7th, and at seven on the 22d, being then on the meridian at three quarters past one in the morning. His latitude, on the 1st, is two degrees forty-two minutes south, in the twenty-seventh degree of the first sign; and it continually increases, being, on the 25th, two degrees forty-seven minutes, in the twenty-fifth degree of this sign, his motion being retrograde. He is perceived therefore to be slowly passing under the fifteenth of the Fishes, Jupiter being to the east of him, and the distance between them very slowly diminishing. When Saturn is on the meridian the three first stars of the Ram are above him, and the two western stars are near to it to the east. The Moon passes him on the 14th.

Herschel is on the meridian at a quarter past seven at night on the 1st, and at six on the 20th. His latitude, on the 1st, is a quarter of a degree south, in the thirtieth degree of the ninth sign; and it continues nearly the same the whole month. His motion is first retrograde to the 6th, when he is stationary, and afterwards direct, and it is performed in the first half of this degree: consequently the twelfth of the Archer is still our guide, which, when he is on the meridian, is above him and near to it to the east; and his change of place being small either way, he will be observed only at the close of the month to have approached nearer to it. The Moon passes him on the 6th.

The Moon's apparent diameter, during the 1st, is twenty-nine minutes twenty-eight seconds; and it afterwards increases to the 13th, when it is, at noon, thirty-three minutes twelve seconds. It then decreases to the 28th, during which day it is twenty-nine minutes twenty-four seconds; and on the last midnight it has increased to twenty-nine minutes thirty-two seconds. The Sun's apparent diameter, on the 2d, is thirty-one minutes forty-six seconds; and on the 20th thirty-one minutes fifty-five seconds. The Sun enters the seventh sign on the 23d, at thirty-nine minutes past nine in the morning.

The positions of the fixed stars, at any hour of the night, may be known by referring to the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		16		24	
	h.	m.	h.	m.	h.	m.	h.	m.
VII.	6	46	6	21	5	52		
VIII.	8	51	8	26	7	57	7	28
IX.	10	54	10	29	10	0	9	31
X.	0	49	0	24	11	55	11	26
XI.	2	50	2	25	1	56	1	27
XII.	4	56	4	31	4	2	3	33
I.	6	46	6	21	5	52	5	23

OCTOBER, 1821.

I PRESUME, that several of my readers have tried the experiments I proposed on the globe in the last month, and have thence perceived how the causes operated to prevent the Moon being seen for any length of time for so many evenings after the eclipse; and that, by supposing the Moon to have been in her ascending node, and her latitude to have been as much north as it was south, what an effect that would have produced n her appearances after Sun-set. In that year there was an eclipse of the Sun in March, but not visible in this country. The conjunction was nearly about the same time of the day, but the situation of the Moon on the following nights was very different. They form such a contrast to what we noticed in our late experiment, that they deserve to be tried in the same manner. The eclipse was on the 14th of March: the conjunction at twenty minutes past one in the afternoon. The Sun's places in the ecliptick, at Sun-set on that and the following days, were as follow: —

On the 14th, in the twenty-fourth degree of ♓, the twelfth sign.
15th, in the twenty-fifth.
16th, in the twenty-sixth.
17th, in the twenty-seventh.
18th, in the twenty-eighth.
But near to the end of these degrees eastward.

The Moon's place on these days at Sun-set.
On the 14th, in twenty-fifth degree of ♓, the twelfth sign, near end eastward.
15th, in tenth degree of ♈, the first sign.
16th, in twenty-fifth degree, same sign.
17th, in ninth degree of ♉, second sign.
18th, in twenty-third degree, same sign.

The Moon's latitude on these days, at Sun-set.
14th, less than half a degree south.
15th, more than three quarters of a degree north.
16th, less than two degrees and a quarter north.
17th, more than three degrees and a quarter north.
18th, less than four degrees and a quarter north.

From the above you will perceive, that the Moon's state was in every respect different from that after the eclipse in September. In this case she was in her ascending node, in a favourable position of the ecliptick, and with a rapid motion: for the three first days at a greater rate than thirty-five minutes in an hour, or fourteen degrees in the twenty-four hours; and in the last day she moved at nearly the rate of thirteen degrees and a quarter in the twenty-four hours.

Thus we see what a difference takes place in the Moon's appearances, according to circumstances; and these will be particularly noticed in her risings, and settings, and meridional heights. The phenomenon of the Harvest Moon is well known, and in some years the advantage of it is greater than in others. In some years her meridional height is greater in one month than it is at others in the same month; but both Sun and Moon agree in this respect, that the spirals, which they appear to describe in the heavens, are continued without interruption; whereas, when we trace the apparent track of the Planets, they do not form a spiral but a zigzag course, which puzzled not a little the ancient astronomers.

Having thus contemplated the apparent paths of the Sun and Moon in our heavens, it is now time for us to turn our attention to the bodies next in dignity to them in our system, to which we give the name of planets, or wandering bodies, to distinguish them from other objects, similar in some respects in appearance, but differing from them in not changing their positions with respect to each other. The number of these planets is not known, for within these few years four newly-discovered ones have been added to our system, and in the course of a few hundred years more this number may be considerably increased.

The planets, with which we are at present acquainted, may be divided into two classes; those which appear to describe, at some time or other, a complete arc in the heavens from the eastern to the western horizon, i. e. from rising to setting; and those, which never appear to describe such an arc. From the portion of the arc, however, seen to be described by the latter, we can infer the arc that they do describe, though they are not seen in it. The first class contains what are called the superior, the second the inferior planets; the Earth's orbit being contained in the orbits of the former, and containing the orbits of the latter.

In the first class are the planets Mars, the four newly-discovered planets between the orbits of Mars and Jupiter, Jupiter, Saturn, and Herschel. In the second class are the planets Venus and Mercury.

Of these planets the most distinguished are Jupiter and Venus. They are far superior to the others in splendour, and are frequently confounded with each other under the names of the morning and the evening stars. Venus, when she precedes the Sun in her rising, is called the morning star; but though at times she approaches near to the meridian at Sun-rise, yet she is never seen upon it by the general observer after that time. When she sets after the Sun she is known by the name of the evening star, and at times she is seen near to the meridian at Sun-set, but is never seen before that time upon it by the general observer. In this she differs from Jupiter, who is frequently seen upon the meridian, both at Sun-rise and Sun-set. The appearances of Mercury are similar to those of Venus, differing only in that his greatest distance from the Sun at Sun-rise and Sun-set is less than the greatest distance of Venus from the Sun at those times. All the planets have this in common with the Sun and Moon, that if we trace their path in the heavens they appear to go from their least meridional height to the greatest and from the greatest to the least in continued succession; but in this course their meridional height does not always increase or decrease from one point to the other. They describe at one time spirals like the Sun and Moon, the interval between the threads increasing or decreasing; and then the continuity of the spiral is disturbed; and after a time the spiral is again resumed in its former direction; and so on, with a very beautiful variety. This arises from the difference in the apparent motion in their orbits of the planets from that of the Sun and Moon; the two latter bodies constantly moving from west to east in their orbits, the former moving at one time from west to east, then stopping, as it were, and moving back from east to west, and so on in continued succession.

Of these latter motions we have a beautiful specimen in the relative appearances of Jupiter and Saturn this year. At first, Saturn is seen to the east of Jupiter, and Jupiter is perceived to be moving towards Saturn. The conjunction of Jupiter, and afterwards of Saturn, with the Sun, prevents our perceiving his motion, with respect to the latter, for some time; but after they have become morning stars, and before June, we perceive, that Jupiter is approaching nearer and nearer every day to Saturn, passing him on the 19th of June, and afterwards getting every day farther and farther from him to the east. This state continues to August, in which month both planets are stationary, and then Jupiter turns back, and moves from east to west towards Saturn. He is continually approaching towards the latter planet; but in December they both become again stationary, and Jupiter first, so that, having arrived to nearly his least distance from Saturn, he resumes again his motion from west to east, and their distance from each other begins again to increase. A person, who attends to these phœnomena in the heavens, will learn more from ocular observation than he can by all the books and all the diagrams, that have been written to make this subject familiar to him. I trust that they will not be lost upon you, and proceed to describe the appearances in the heavens for this month.

The Moon's latitude, on the 1st at noon, is five degrees eleven minutes south, in the fifth degree of the ninth sign; and it decreases to the 8th, when she passes the ecliptick in her ascending node, about ten in the morning, in the fifth degree of the twelfth sign. Her northern latitude then increases to the 14th, when it is, at noon, five degrees seven minutes, in the sixth degree of the third sign; and afterwards it decreases to the 21st, when she passes the ecliptick in her descending node, about three in the morning, in the third degree of the sixth sign. Her southern latitude now increases to the 28th at noon, when it is five degrees two minutes, in the second degree of the ninth sign; and it afterwards decreases to the end of the month, being, on the last midnight, three degrees and three quarters, in the fifteenth degree of the tenth sign.

On the 1st, the Moon is seen at Sun-set near to the horizon to the west of south-south-west, and Antares will be seen soon after above and near to her, but to the west, as she passed this star about sixteen minutes past five after noon: her great southern latitude will be noticed from this position. On the 2d, she is seen under the eighth of the Serpent-bearer, bending her course under the small stars in the head of the Archer. On the 3d, she has above her the twelfth of the Archer, being between the third and eleventh of this constellation, the former star below her to the west, the latter above her to the east.

On the 4th, the Moon is on the meridian at twenty-five minutes past six after noon, being directly under the small stars in the head of the Archer, and having the eighteenth near to her to the west. On the 5th, she is on the meridian at nineteen minutes past seven, having almost directly above her the two first stars of the Goat. On the 6th, she is on the meridian at twelve minutes past eight, having to the east of her the four small stars in the tail of the Goat, which she will have passed before her next appearance. On the 7th, she is on the meridian at three minutes past nine, having below her the four small stars in the tail of the Goat to the west, and above her the first and second of the

Water-bearer, the latter star near to it to the east, the former at a much greater distance to the west. On the 8th, she is on the meridian at fifty-three minutes past nine, having above her and near to it the two western of the four stars in square, and below her, near to the horizon, Fomalhaut, the first of the Southern Fish. Much nearer to her and above her to the east are the four stars in triangle of the Urn. She is directing her course above Saturn and Jupiter, at a considerable distance from her to the east. On the 9th, she is on the meridian at forty-four minutes past ten, having above her the two eastern of the four stars in square, near to it to the east. On the 10th, she is on the meridian at thirty-six minutes past eleven, having below and near to her the fourth of the Fishes to the west, and the fifth to the east: Saturn and Jupiter to the east of her will attract our notice.

On the 11th is full Moon, at twenty-six minutes past eight in the morning, but from her too great northern latitude without an eclipse. In the evening she rises soon after the three first stars of the Ram to the east of her, and we shall soon see Saturn and Jupiter under her; and her passage by these two planets is the chief feature of her course. On the 12th, she rises under the three first stars of the Ram, nearly with Jupiter and Saturn to the east of her, and with the planets and three stars forms a pleasing and varying group during the night. On the 13th, she rises nearly with the Pleiades to the east of her, and passes them before midnight, her passage by them being the chief feature in her course, directed to the second of the Bull. On the 14th, she rises soon after the Pleiades to the west, and is soon followed by the second of the Bull to the east of her, being nearest to the latter star. On the 15th, she rises soon after the second of the Bull to the west of her, having passed this star at twenty-one minutes past noon. On the 16th, she rises with the two first stars of the Twins to the east of her, being soon followed by the fifth, below and near to her to the west: she will be observed to direct her course to Mars, at a considerable distance from her to the east. On the 17th, she rises under the two stars of the Twins, and will be in a line with them before midnight. On the 18th, she rises near to but to the east of the two stars and included nebula of the Crab; and during the morning of the 19th will be perceived to have made such approaches to Mars, that she will have passed him before her next appearance.

On the 20th, the Moon rises in the morning under the small stars in the head of the Lion, Mars being now above her, having passed this planet at twenty minutes past ten in the morning of the 19th: she is seen afterwards to direct her course to the first of the Lion. On the 21st, she rises under the first of the Lion to the west of her, as she passed this star at thirty-nine minutes past two in the afternoon of the preceding day. On the 22d, she rises under the Lion, its principal stars being above her, and she is seen afterwards to direct her course under the second of the Virgin. On the 23d, she rises under the second of the Virgin; and on the 24th under the five stars in triangle of the Virgin.

On the 26th is new Moon, at nine minutes before one in the morning, but from her great southern latitude without an eclipse; and on the 28th her crescent is seen for a short time after Sun-set near the horizon in the south-west, her very great southern latitude and unfavourable position making her stay above the horizon after Sun-set, notwithstanding her distance from the Sun, little more than half an hour. Antares is above and near to her to the east, as she passes this star at twenty-four minutes past eleven at night, and Venus is above her to the east. On the 29th, she is seen still near to the horizon, Venus being now above her to the west, but she has been since yesterday bending her course back to the ecliptick. On the 30th, she is seen under the twelfth and eleventh of the Archer to the east of her, having the third under and near to her; and on the 31st she is seen under the small stars in the head of the Archer, and we cannot but have noticed how short has been her stay above the horizon after Sun-set since the conjunction, owing to the slowness of her motion, her southern latitude, and unfavourable position of the ecliptick.

Mercury is an evening star, at his greatest elongation on the 31st. His latitude, on the 1st, is eight minutes south, in the twenty-first degree of the seventh sign; and it increases to the end of the month, being, on the last day, two degrees fifty-one minutes, in the second degree of the ninth sign, his motion being direct during the whole month. The unfavourableness of his position and southern latitude will prevent his being noticed by the general observer. On the last day he is under the fourth and second of the Scorpion, and near to the former star. The Moon passes him on the 28th.

Venus is an evening star. Her latitude, on the 1st, is thirty-six minutes south, in the thirteenth degree of the eighth sign; and it increases during the whole month, being, on the 25th, one degree forty-nine minutes, in the twelfth degree of the ninth sign. She is first seen, but still near to the horizon, under and near to the first of the Balance, having just passed this star; and she directs her course between the second and fourth of the Scorpion, passing under the eleventh of the Balance on the 14th, and under the second of the Scorpion on the 16th. She passes Antares on the 21st, and finishes her course under and near to the eighth of the Serpent-bearer. The Moon passes her on the 29th.

Mars rises a little before midnight on the 1st, and every night earlier. His latitude, on the 1st, is one degree four minutes north, in the second degree of the fifth sign; and it increases continually, being, on the 25th, a degree and a half, in the fifteenth degree of the same sign. He is first seen to the west of the two small stars and included nebula of the Crab, and his passage by the nebula on the 5th and 6th will be interesting to the telescopick observer. He thence directs his course to the first of the Lion, passing the eleventh of this constellation on the 20th. The Moon passes him on the 19th.

Ceres is an evening star. Her latitude, on the 1st, is one degree and a quarter south, in the eleventh degree of the ninth sign; and it continually increases, being, on the 17th, one degree forty minutes, in the sixteenth degree of this sign, her motion being direct through about ten degrees. They, who have watched her course during the last month, will find no difficulty in tracing it from the beginning of this, through the barren space she is now passing, towards the eighth of the Serpent-bearer, under and near to which star she will be seen on the 25th; and she thence directs her course towards the eleventh of the Archer, but she makes no great progress from the eighth of the Serpent-bearer, so that a telescope directed to this star, and then turned eastward, will easily find her. The Moon passes her on the 1st.

Jupiter rises at Sun-set on the 4th, and every succeeding evening earlier, and is on the meridian at midnight on the 18th. His latitude, on the 1st, is one degree thirty-five minutes, increasing a little, and then decreasing; and on the 25th it is one degree thirty-four minutes, in the twenty-fifth degree of the first sign. He is retracing his steps towards Saturn, who is also retrograding, but not so fast; and he passes near to the fifteenth of the Fishes on the 19th, finishing his course between this star and Saturn. He rises under the three stars of the Ram to the east of him, the Moon passing him on the 11th.

Saturn is on the meridian at midnight on the 17th, and rises on the 3d about six at night. His latitude, on the 1st, is two degrees forty-seven minutes south, in the twenty-fifth degree of the first sign; and it increases only a minute, his motion being retrograde, and he is in the twenty-third degree on the 25th. He is travelling, therefore, in the barren space between the bands of the Fishes, just having quitted the eastern band; and Jupiter is following him, the distance between them daily diminishing. The Moon passes him on the 11th.

Herschel is an evening star. He is near to the meridian at first, but to the west of it at Sun-set, and every evening farther from it at that time. His latitude, on the 1st, is a quarter of a degree south, in the thirtieth degree of the ninth sign; and he enters the next sign at the close of the month. We shall discover him, therefore, with ease under the twelfth of the Archer, which he passes about the end of the month. The Moon passes him on the 3d.

The Moon's apparent diameter, on the 2d at midnight, is nearly half a degree; and it increases to the 11th, during which day it is about thirty-three minutes twenty-six seconds; and it then decreases to the 25th, during which day it is about twenty-nine minutes twenty-two seconds; and it then increases to the end of the month, being, at midnight on the 30th, half a degree. The Sun's apparent diameter, on the 1st, is thirty-two minutes two seconds; and, on the 17th, thirty-two minutes eleven seconds. The Sun enters the eighth sign on the 23d, at forty-seven minutes past five after noon.

For the appearances of the principal fixed stars, at any hour of the night, consult the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		16		25	
	h.	m.	h.	m.	h.	m.	h.	m.
VIII.	7	3	6	38	6	8	5	34
IX.	9	6	8	41	8	11	7	37
X.	11	1	10	36	10	6	9	32
XI.	1	2	0	37	0	7	11	33
XII.	3	8	2	43	2	13	1	39
I.	4	58	4	33	4	3	3	29
II.					6	6	5	32

NOVEMBER, 1821.

THE two extremes of our planets, Herschel and Mercury, present to us very different appearances from the great differences between their periodick times and the angles of their orbits with the ecliptick. Herschel has been and will be for some time in a disadvantageous situation, and during this year his stay above our horizon is about the same as that of the Sun on midwinter day; for he vibrates from one side to the other of the solstitial winter colure, and who of my readers will see him when he vibrates in a similar manner by the solstitial colure in summer? Still he affords sufficient opportunities to observers to notice his path; but if we transport ourselves in idea to this distant planet it may be very much doubted, whether the existence of such a body as our Earth is known to its inhabitants.

This reflection might tend to curb the vanity of some men, who are so mightily engrossed with the transactions in their little sphere of action, that they vainly imagine the dispensations of Providence are bounded by a regard only to us mortals, not considering, that there are myriads upon myriads of beings, equally the objects of his paternal care, and to whom he may be known by benefits conferred in a manner of which we can form no idea. Thus astronomy tends to enlarge the mind, and to free it from the trammels of that scholastick theology, with whose vagaries a northern divine lately amused the metropolis. Suffice it for us, that in the book of grace is given an ample account of the government of God, as far as it concerns ourselves, both as to the beginning and end of the Christian dispensation; but we might as well pretend to discover the height and shape of the inhabitants of Herschel from our Holy Scriptures as to determine from them the proceedings of Providence as to their present or future welfare.

Herschel, I have observed, is this year in a very disadvantageous situation; for, in fact, he cannot be easily discovered in general but for about two hours before and after his coming to the meridian; and in this interval the Sun will be frequently above the horizon, so as to render him invisible. In other situations, if he is disadvantageously placed in rising, it is counterbalanced by the advantages at others in setting, and vice versa; but this year, whether he rises or sets, his height above the horizon is nearly the same at the same interval from Sun-rise or Sun-set. This will be easily pointed out with a globe by the teachers of astronomy to their pupils.

Venus has, in the same manner, her favourable and unfavourable years. At some seasons the duration of her stay and her height above the horizon after Sun-set or before Sun-rise is considerable, at others, at an equal distance from the Sun, she is scarcely noticed. If in the favourable positions her situation in the orbit is such as to make her light as is usually termed a maximum, then she shines forth with great splendour, and is seen for a considerable time before Sun-set and after Sun-rise; and this variety in her appearance calls forth the admiration of the commonest observers at those times of her splendour. In countries blest with a warmer Sun this will be more frequently noticed, and in some the unfavourableness of position we have been speaking of scarcely takes place, as, like the Sun, in those places she rises or sets perpendicularly, and her greatest brightness, ceteris paribus, depends on her distance from the Sun.

In the northern or southern polar regions, the inhabitants of these cold climates will be cheered at various seasons by her splendour, in their long winter nights; and probably our adventurers on the expedition for a north-western passage, which has been conducted with such favourable auspices, enjoyed her presence for some time after the departure of the Sun, and marked her spiral continually bending to the horizon, and not to return to them again as the bright harbinger of morn before the returning Sun.

Thus nature, ever varying in its operations, calls forth the sluggish mind from its apathy, and amply repays those, who will reflect on what they see, with the beauty of its endless works. Every clime on Earth presents something, in which the appearances of the heavens differ from those in others. In the polar regions the spiral motions of the heavens, we have been noticing in this volume, will be familiar to the observers; and hereafter perhaps planets may be discovered, which, though not visible to the naked eye, may compensate the telescopick observer for the want of those which accompany the Sun, and science may flourish in regions doomed, as we think, to sterility and barbarism. There was a time when the north of Britain was thought scarcely habitable. We shudder at the idea of a winter's residence near the poles; yet who knows what riches they may possess? Its mineral productions may compensate for the rigidity of its soil. This is an answer to those, who think only of pounds, shillings, and pence in their actions, or the estimation of those of others. We are gratified by the accession to our knowledge of the Earth from the fortitude of our hardy adventurers. How much more glorious is such an exploit than one accompanied with the destruction of our fellow creatures! I resume my employment in noting the appearances in the heavens for this month.

The Moon's latitude, on the 1st at midnight, is two degrees fifty-five minutes south, in the twenty-seventh degree of the tenth sign; and it decreases to the 4th, when she passes the ecliptick in her ascending node, a little before four in the afternoon, in the second degree of the twelfth sign. Her northern latitude now increases to the 10th, being, at noon of this day, five degrees, in the twenty-ninth degree of the second sign; and it afterwards decreases to the 17th, when she passes the ecliptick in her ascending node, about three in the morning, in the first degree of the sixth sign. Her southern latitude increases to the 24th, being, at noon of this day, nearly four degrees fifty-nine minutes, in the twenty-ninth degree of the eighth sign; and it continues to decrease to the end of the month, being, on the last midnight, forty-nine minutes, in the twentieth degree of the eleventh sign.

The Moon is on the meridian, on the 1st, at sixteen minutes past five after noon, having to the west of her the small stars in the head of the Archer, and above her, at some distance to the east, the two first stars of the Goat. On the 2d, she is on the meridian at seven minutes past six, having now above her but to the west the two first stars of the Goat. On the 3d, she is on the meridian at fifty-seven minutes past six, having directly under and near to her the four small stars in the tail of the Goat. On the 4th, she is on the meridian at three quarters past seven, having directly above her but at some distance the four stars in triangle of the Urn. On the 5th, she is on the meridian at thirty-four minutes past eight, being directly under the four stars in square, the two western being to the west of it: she is directing her course to Saturn and Jupiter, at a considerable distance from her to the east. On the 6th, she is on the meridian at twenty-three minutes past nine, the four stars in square being now above her to the west of it: she is making rapid approaches towards Saturn and Jupiter. On the 7th, she is on the meridian at a quarter past ten, having under her to the east Saturn and Jupiter; and her passage by these two planets, which she will have passed before Sun-rise, is the chief feature of her course. On the 8th, she is on the meridian at ten minutes past eleven, being under the three first stars of the Ram, and directly under the first: Jupiter and Saturn are now to the west of her.

On the 9th is full Moon, at fifty minutes past five in the afternoon, but from her too great northern latitude without an eclipse. In the evening she rises above half an hour before Sunset, giving many persons a favourable opportunity of seeing the two luminaries for a considerable time to great advantage, to which her northern latitude mainly contributes. Above her are the three first stars of the Ram to the east, and she is soon followed by the Pleiades, to which latter stars she is directing her course. On the 10th, the two great luminaries will be seen together at Moon-rise; for though she rises a little after Sun-set, refraction will present them both, before that time, to the view of those, who have a favourable horizon. Above and near to her to the west are the Pleiades. On the 11th, she rises with the second of the Bull to the west of her, and she passes this star at eighteen minutes past ten at night. On the 12th, she rises with the first of the Twins to the east of her, the second of the Bull being above her to the west, and she passes above the fifth of the Twins after midnight. On the 13th, she rises with the second of the Twins, but does not pass under this star till after midnight. On the 14th, she rises under the two first of the Twins at some distance from her to the west, and passes the nebula of the Crab in her course: she is perceived to direct her course to Mars and the first of the Lion. On the 15th, she rises under the small stars in the head of the Lion, and makes rapid approaches to Mars and Regulus. On the 16th, she rises under the first of the Lion and Mars, having passed the star at six minutes past nine at night; and during the morning of the 17th she recedes from them with a retarded motion.

On the 18th, the Moon rises in the morning with the second of the Lion to the east of her, having above her the first, and Mars to the west. On the 19th, she rises with the seventh of the Virgin to the east of her, the second being above her to the west. On the 20th, she rises under the five stars in triangle of the Virgin, being soon followed by the first, which she will have passed before her next appearance. On the 21st, she rises under the first of the Virgin now to the west of her. On the 22d, she rises under the tenth and eleventh of the Virgin to the west of her; and on the 23d she rises under the two first of the Balance.

On the 24th is new Moon, at sixteen minutes past seven after noon, but from her great southern latitude without an eclipse; and on the 27th her crescent is seen under the small stars in the head of the Archer, for she will be above the horizon not half an hour after Sun-set on the preceding evening, and then so near to it that she will be noticed by very few. On the 28th, she is seen under the two first stars of the Goat, at some distance from her to the east. On the 29th, she is seen to have passed the two first stars of the Goat, who are now above her but to the west; and on the 30th she is on the meridian at forty-seven minutes past four after noon, having the four small stars of the Goat below her to the east, and she passes the lowest and most western about Moon-set.

Mercury is in his inferior conjunction on the 20th, and till that time an evening star. He is stationary on the 9th, and again on the 30th. His latitude, on the 1st, is two degrees fifty-one minutes south, in the third degree of the ninth sign; and it decreases to the 19th, when he passes the ecliptick in his ascending node, in the first degree of the ninth sign. His northern latitude increases, and is, on the last day, two degrees thirty-seven minutes, in the twenty-first degree of the eighth sign. His first stationary point is in the seventh degree of the ninth sign; his second in the twenty-first degree of the eighth sign. His unfavourable position and southern latitude prevent him from being noticed in the former part of the month, but after the conjunction he emerges rapidly from the solar beam, being assisted by a better position and a northern latitude. On the 28th he will be easily discovered under the two first of the Balance, near to the sixth of this constellation, about an hour before Sun-rise, and he recedes but little from this spot for the following mornings. The Moon passes him on the 24th.

Venus is an evening star. Her latitude, on the 1st, is two degrees six minutes south, in the twentieth degree of the ninth sign; and it increases to nearly the end of the month, being, on the 25th, two degrees thirty-five minutes, in the eighteenth degree of the tenth sign. She is first seen near to the eighth of the Serpent-bearer, to direct her course under the eleventh of the Archer, passing Herschel soon after midnight of the 10th, and a telescope directed above her about two degrees and a quarter will discover him: thence she proceeds to the eleventh of the

Archer, passing under this star on the 13th. On the 19th, she is between the eighteenth and small stars in the head of the Archer, and thence proceeds into the barren space between this constellation and the Goat. The Moon passes her on the 28th.

Mars rises before midnight, and is on the meridian about seven in the morning of the 2d, and six on the 26th. His latitude, on the 1st, is one degree thirty-eight minutes north, in the nineteenth degree of the fifth sign; and it continually increases, being, on the 25th, two degrees twelve minutes, in the thirtieth degree of this sign. He is first seen under the small stars of the head of the Lion, and above the first to the east of him, towards which star he moves with a slow and retarded motion, passing above this star on the 20th, at the distance of eighty-eight minutes from it, and finishing his course about five degrees from it to the east. The Moon passes him on the 16th.

Ceres is an evening star, but about ten degrees only above the horizon at Sun-set, and this height is daily decreasing, so that few only but those who have good opportunities will trace her progress farther before her conjunction with the Sun. Her latitude, on the 1st, is two degrees south, in the twenty-second degree of the ninth sign; and it continually increases, being, on the 17th, two degrees twenty-three minutes, in the twenty-eighth degree of this sign, her motion being direct through about eleven degrees and a half. She will be first seen below and to the east of the eighth and the nebula near to it of the Serpent-bearer, and she directs her course through the barren space between the two branches of the Milky-way, finishing it under, near to, but to the west of the eleventh of the Archer. The Moon passes her on the 27th.

Jupiter is on the meridian, on the 1st, about eleven at night, and on the 25th about a quarter past nine. His latitude, on the 1st, is one degree thirty-three minutes south, in the twenty-fourth degree of the first sign; and it continually decreases, being, on the 19th, a degree and a half, in the twenty-second degree of this sign, his motion being retrograde the whole month. He is seen at first in the barren space between the eastern and western band of the Fishes, which is enlivened by two planets near each other, the distance between Jupiter and Saturn daily decreasing, but very slowly, and at last being somewhat more than a degree and a quarter. The Moon passes him on the 8th.

Saturn is on the meridian a little before eleven at night on the 1st, and at a quarter past nine on the 25th. His latitude, on the 1st, is two degrees forty-seven minutes south, in the twenty-third degree of the first sign; and it is continually decreasing, being two degrees forty-three minutes, in the twenty-first degree of this sign, on the 25th, his motion being retrograde. He is seen every night, when on the meridian, with Jupiter above him and near to him to the east, the distance between them slowly decreasing, and we might expect that Jupiter would pass him. They are in the barren space between the eastern and western part of the band of the Fishes, and Saturn comes to about the middle of it at the close of the month, having then the twelfth of this constellation almost directly under them. The Moon passes him on the 8th.

Herschel is an evening star, which we have sufficient opportunities of observing in the former part of the month. His latitude is a quarter of a degree south, in the first degree of the tenth sign; and it continues nearly the same the whole month, in the course of which his motion is direct to nearly the end of the second degree in this sign. We see him, therefore, under the twelfth of the Archer to the west, directing his course above the eleventh to the east of him, but he does not reach the line drawn between those two stars. The Moon passes him on the 27th.

The Moon's apparent diameter, on the 1st at midnight, is thirty minutes thirty-eight seconds; and it increases to the 9th, when it is, at noon, thirty-three minutes twenty-six seconds. It then decreases to the 21st, during which day it is about twenty-nine minutes twenty-six seconds; and it then increases to the end of the month, being, on the last midnight, thirty-one minutes four seconds. The Sun's apparent diameter, on the 2d, is thirty-two minutes nineteen seconds, and on the 19th thirty-two minutes twenty-seven seconds. The Sun enters the ninth sign on the 22d, at ten minutes past two in the afternoon.

The position of the fixed stars may be known by consulting the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		16		24	
	h.	m.	h.	m.	h.	m.	h.	m.
VIII.	5	6	4	39	4	7		
IX.	7	9	6	42	6	10	5	36
X.	9	4	8	37	8	5	7	31
XI.	11	5	10	38	10	6	9	32
XII.	1	11	0	44	0	12	11	38
I.	3	1	2	34	2	2	1	28
II.	5	4	4	37	4	5	3	31
III.	6	53	6	26	5	54	5	20

DECEMBER, 1821.

MY Readers will recollect, that in an early period of this work they were recommended to make little plans of constellations, either from a globe or catalogue of stars, by means of which they might easily ascertain at night the stars in the district planned, which were then above the horizon. By the same mode the path of a planet or comet may be traced; and we are indebted this year to Mr. Woolgar, of Lewes, for the plan he has given us, according to the mode above mentioned, of the path of the newly-discovered planet Ceres. The Memoir at the end of this Work comes from his pen, and its merit will be duly appreciated by those, who consider the calculations necessary for the adjustment of the positions of the stars in the vicinity of the planet, and the various works that he has consulted upon the occasion. Upon so small a scale as the plan was necessarily made, to adjust it to the size of this Work, extreme accuracy cannot be expected; but in it there is enough to direct the telescopick observer; and on any night he may, by means of the Memoir, furnish himself with a plan on a larger scale, by which he will easily perceive the position of the planet with respect to the small objects around it.

In the great observatories of Europe this mode of recording the positions of the stars, if it had been adopted from the origin of their foundations, would have been found of great advantage. There is a great difference between having a catalogue of stars to consult, and a plan or chart of them before the eyes; and there is little doubt, that the planet Herschel would have been discovered long before this time, if the persons employed on making the catalogues had had before them the plans of the stars, that they had viewed on preceding nights of observation in different years. In private observatories this has, I fear, been too much neglected: the consequence has been, that year has passed over year without any notice being taken of changes, that could not have escaped the observation of persons, who had the plans I have mentioned before their eyes. In fact, the general observer, who has only common telescopes, may pursue this method with great advantage. He cannot indeed mark, with the accuracy of those, who have micrometers to their telescopes, the positions of the telescopick stars, but he may do it with sufficient precision, that if any change has taken place in the small district he has traced on his paper, he will be able at the next observation to notice it.

This may be done, with great ease to the observer, by having paper lined in squares, which he may get upon any scale he chooses. He will then place any star he pleases as near to the center of his field of view as he can, and, placing it at one of the intersections of his lines on the paper, note down the other stars, as well as his eye directs him, on the paper, to form a tolerably near resemblance of the objects, as they are presented to him through the telescope. By doing this a few successive nights, and comparing together his several plans, he will gradually obtain a facility of doing this with a sufficient degree of accuracy. He should be careful also to note down upon each paper the hour of the day and the day of the month when his observation was taken, and it will be a source of amusement to him in successive years to compare together his several observations; and if he has in distant parts of the country friends, engaged in similar pursuits, the transmission of their plans to each other may form an agreeable part of their correspondence. I am not sure that, if this plan were generally adopted, science would not benefit as much by private observations, as it does now by the expensive establishments in Europe for the encouragement of astronomical observations.

These great establishments would also essentially promote the cause of science, and at very little expense, if they would annually publish a small volume, containing plates of the paths of the four planets between Mars and Jupiter, and that of Herschel, prospectively and retrospectively; that is, the path of these planets, as it appeared at their observatories in the past year, and their path delineated by them for the current year. In every year delineations might also be given of different districts in the heavens, according to their latest observations. This would greatly improve the situation of the private observer, and in time such a complete delineation of the heavens would be formed, that every change that takes place in them would be sure to be noted in some part or other of the world. The exchange of these volumes by the different observatories would keep up a useful correspondence between them; and thus, by the co-operation of these illustrious bodies, a future age might have as useful information, at least, as could have been collected by the tables of Babylon, whose loss has been the subject of deep regret to modern astronomers. But I will dilate no longer on this subject, and proceed to trace the appearances in the heavens for this month.

The Moon crosses the ecliptick on the 1st, in her ascending node, about five in the afternoon, in the twenty-ninth degree of the eleventh sign; and her northern latitude increases to *the* 7th, when it is, at midnight, five degrees and a minute, in the thirtieth degree of the second sign. It then decreases to the 14th, when she passes the ecliptick in her descending node, between five and six in the morning, in the twenty-eighth degree of the fifth sign. Her southern latitude now increases to the 21st, when it is, at noon, nearly five degrees four minutes, in the twenty-sixth degree of the eighth sign; and it afterwards decreases to the 28th, when she passes the ecliptick in her ascending node, between five and six in the afternoon, in the seventh degree of the eleventh sign; and her northern latitude then increases to the end of the month, being, on the last midnight, three degrees thirty-six minutes, in the eleventh degree of the first sign.

The Moon is on the meridian, on the 1st, at thirty-five minutes past five in the afternoon, having directly above her the four stars in triangle of the Water-bearer. On the 2d, she is on the meridian at twenty-one minutes past six, having directly above her the two western of the four stars in square; and she directs her course to Saturn and Jupiter at a considerable distance from her to the east. On the 3d, she is on the meridian at seven minutes past seven, being now under the two eastern of the four stars in square near to it to the east. On the 4th, she is on the meridian at fifty-five minutes past seven, having under and near to her the fourth of the Fishes, Saturn and Jupiter being so near to her to the east, that she will have passed them before her next appearance. On the 5th, she is on the meridian at forty-seven minutes past eight, having the three first stars of the Ram above her to the east, and Saturn and Jupiter below her to the west. On the 6th, she is on the meridian at forty-two minutes past nine, having the three first stars of the Ram above her, now to the west, and making still with them and the two planets a fine group. On the 7th, she is on the meridian at forty-two minutes past ten, having directly under and very near to her the Pleiades; and her passage by these stars will deserve the attention of the telescopick observer. On the 8th, she is on the meridian at forty-seven minutes past eleven, having to the east of her the second of the Bull, which she will have passed before her next appearance.

On the 9th is full Moon, at four minutes past four in the morning, but from her great northern latitude without an eclipse. In the evening she rises under the second of the Bull, now to the west of her, and is seen above the horizon before Sun-set; and the Sun will again appear before she sets, the duration of her stay above the horizon being nearly sixteen hours and a half, nearly half an hour longer than that of the Sun in the longest day of the year. In her course she passes the summer solstice about an hour and a half after midnight, having then under her the seventh and twelfth of the Twins, and she ends it near to, but above and to the west of the fifth of this constellation; the rapidity of her motion and northern latitude add greatly to the advantages of the position of the ecliptick at her rising. On the 10th, she rises nearly with the second and fifth of the Twins, the latter star near to her to the west, and the former at some distance from her to the east; she directs her course under the two first, declining from them to the ecliptick, and passes the first about Sun-rise. On the 11th, she rises under and nearly in a line with the second and first of the Twins, and is seen afterwards to direct her course under the first of the Lion and Mars, at a considerable distance from her to the east. On the 12th, she rises under and near to the two small stars and included nebula of the Crab, nearly with the lowest of the small stars in the head of the Lion to the east of her. On the 13th, she rises under the small stars in the head of the Lion, and is soon followed by the first, and within an hour by Mars: she passes under the star at about five hours and a quarter after midnight, and will have passed Mars before her next appearance. On the 14th, she rises under the first of the Lion to the west of her, and soon after Mars near to her to the east, and her passage under this planet is the chief feature in her course. On the 15th, she rises under Mars and the constellation of the Lion; and is seen during the morning of the 16th to be directing her course under the second of the Virgin, which she passes about Sun-rise.

On the 17th, the Moon rises in the morning under the seventh of the Virgin, which she has just passed, but does not pass the third before Sun-rise. On the 18th, she rises under the five stars in triangle of the Virgin, and is seen afterwards to direct her course under the first. On the 19th, she rises almost directly under the first of the Virgin to the west of her. On the *20th*, she rises with the first of the Balance to the east of her, under the eleventh and tenth of the Virgin, but she does not pass the former star before Sun-rise. On the 21st, she rises under the two first stars of the Balance, from her great southern latitude at some distance from her, and she is seen afterward to direct her course under the first of the Scorpion. On the 22d, she rises with Antares to the east of her, under the second of the Scorpion, but she does not pass the former star for some time after Sun-rise.

On the 24th is new Moon, at six minutes past one after noon, but from her great southern latitude without an eclipse. On the 26th, her crescent is seen under the two first stars of the Goat, Venus being above her at a considerable distance to the east. On the 27th, she is seen to have approached so near to Venus, that she will have passed this planet before her next appearance. On the 28th, she has Venus below and near to her to the west.

On the 29th, the Moon is on the meridian at six minutes past four after noon, when Venus will be seen below her at some distance to the west: above her will afterwards be seen the four small stars in triangle of the Urn of the Water-bearer to the west of her, as she will have just passed them at their appearance. On the 30th, she is on the meridian at fifty-two minutes past four, being directly under the four stars in square, the two western to the west, and the two eastern to the east of it: Saturn and Jupiter will be noticed at a considerable distance from her to the east, as also Venus to the west. On the 31st, she is on the meridian at thirty-eight minutes past five, having above her to the west of it the four stars in square, and her approach to Saturn and Jupiter to the east of her will be the chief feature in her course.

Mercury is a morning star, at his greatest elongation on the 8th. His latitude, on the 1st, is two degrees thirty-nine minutes north, in the twenty-first degree of the eighth sign; and it decreases to the 27th, when he passes the ecliptick in his descending node, in the twenty-first degree of the ninth sign; and his southern latitude is, on the last day, half a degree, in the twenty-seventh degree of this sign, his motion being direct the whole month. This month is particularly favourable to observations upon this planet, as he is at first nearly two hours above the horizon before Sun-rise; and on the 7th his duration is about two hours, and it does not decrease to an hour till the 28th. We shall first see him above and near to the sixth of the Balance, passing between that star and the third, and he directs his course to the second of the Scorpion: and on the 8th he is nearly midway between this latter star and the sixth of the Balance. On the 13th he is seen above and near to the second of the Scorpion, passing this star at the distance of nearly three quarters of a degree to the north of it; but the decline of his northern latitude and approach to the Sun soon begins to be sensibly felt. The Moon passes him on the 22d.

Venus is an evening star, at her greatest elongation on the 25th. Her latitude, on the 1st, is two degrees thirty-three minutes south, in the twenty-fifth degree of the tenth sign; and it decreases to the end of the month, being, on the 25th, one degree thirty-five minutes, in the twenty-first degree of the eleventh sign. She is first seen under the two first of the Goat to the east of her; and she passes these stars on the 7th, directing her course to the four small stars in the tail, passing above and near to the two highest of them on the 23d and 24th; and she finishes her course above and near to the ninth of the Water-bearer. On the day of greatest elongation she is about four hours above the horizon at Sun-set. The Moon passes her on the 28th.

Mars rises about three quarters past ten at night on the 1st, at ten on the 15th, and every succeeding night earlier. He is on the meridian about half past five in the morning of the 8th, and at half past four on the 24th. His latitude, on the 1st, is two degrees twenty-one minutes north, in the second degree of the sixth sign; and it continually increases, being, on the 25th, three degrees four minutes north, in the ninth degree of the sixth sign. At his first rising he is seen under and near to the first of the Lion to the west of him, and he moves very slowly from this star in the body of the Lion. The Moon passes him on the 14th.

Ceres is an evening star, about eight degrees above the horizon at Sun-set. Her latitude, on the 1st, is two degrees forty-two minutes south, in the third degree of the tenth sign; and it continually increases, being, on the 17th, three degrees three minutes south, in the ninth degree of this sign, her motion being direct through about twelve degrees and a quarter. She is first seen under and near to the eleventh of the Archer to the east of her, and this is a sufficient direction for the first week, as she passes it about the 4th, directing her course under and near to (τ) the eighteenth of this constellation, which she passes about the 20th; but she is then so near to the horizon at Sun-set, that she will not easily be detected. The Moon passes her on the 25th.

Jupiter is on the meridian about three quarters past eight at night on the 1st, and at seven on the 25th. His latitude, on the 1st, is eighty-six minutes south, in the twenty-first degree of the first sign; and it continually decreases, being, on the 19th, eighty-one minutes, in the same degree. He is stationary on the 16th, and his motion afterwards direct: hence he is near the same place the whole month, having, when on the meridian, below and near to him the twelfth of the Fishes, above him the three first stars of the Ram to the east, and the four stars in square at a greater distance to the west. His first approaching and then receding from Saturn is the most interesting feature of his course; and this month is very favourable to observations on both these planets.

Saturn is on the meridian at three quarters past eight at night on the 2d, and about seven on the 25th. He is stationary on the 22d, and his motion is direct after that day, but of course very slow during the whole month. His latitude is two degrees forty-two minutes south, in the twenty-first degree of the first sign; and it is decreasing, being, on the 25th, two degrees thirty-five minutes, in the twentieth degree of this sign. Jupiter slowly approaches towards him, but, becoming stationary on the 16th, recedes from him after that day; but they are in the same degree of latitude for nearly the first fortnight. Jupiter will, when Saturn is on the meridian, appear nearly above him, at the distance of about a degree and a quarter. The telescopick observer will enjoy, as he has done before, the sight of these two interesting planets so near each other; and the general observer will have noticed with satisfaction their approaches to and recesses from each other. Jupiter will soon make a rapid progress from his companion, but Saturn will for some time appear near the same spot in the barren space between the eastern and western parts of the band of the Fishes. The Moon passes him on the 5th.

Herschel is in conjunction with the Sun on the 25th, but so near the horizon at Sun-set before that time, that when the stars appear he will not easily be detected. His latitude, on the 1st, is a quarter of a degree south, in the second degree of the tenth sign; and it continues nearly the same the whole month. He finishes his course about the middle of the fourth degree of this sign, his motion being direct through about a degree and three quarters. The Moon passes him on the 24th.

The Moon's apparent diameter, on the 1st at midnight, is nearly thirty-one minutes and a half; and it increases to the 7th, during which day it is about thirty-three minutes eight seconds. It then decreases to the 19th, during which day it is nearly twenty-nine minutes and a half; and it increases afterwards to the end of the month, being, on the last midnight, thirty-two minutes six seconds. The Sun's apparent diameter, on the 1st, is thirty-two minutes thirty-one seconds; and on the 21st thirty-two minutes thirty-five seconds. The Sun enters the tenth sign on the 22d, at thirty-nine minutes past two in the morning.

The positions of the fixed stars, at any hour of the night, may be known by referring to the volume for 1806, according to the following Table.

TABLE OF POSITIONS.

Pos.	1		8		17		25	
	h.	m.	h.	m.	h.	m.	h.	m.
IX.	5	6	4	36	3	56	3	20
X.	7	1	6	31	5	51	5	15
XI.	9	2	8	32	7	52	7	16
XII.	11	8	10	38	9	58	9	22
I.	0	58	0	28	11	48	11	12
II.	3	1	2	31	1	51	1	15
III.	4	50	4	20	3	40	3	4
IV.	7	11	6	41	6	1	5	25
V.			8	32	7	52	7	16

ANOTHER year has thus been completed, and let us hope, that the present may be free from those disquietudes, with which the last was accompanied. Is there no balm in Gilead to heal the wounds that have been inflicted on our country? If our contemplations are on the silent motions of the heavenly bodies, still we cannot have been insensible to the scenes around us: and when Royalty has been so roughly handled by contending parties, we cannot but grieve, that whatever imputations might be cast upon it in any quarter, they had not been preserved from publick view, instead of being made the topicks of general, not to say coarse discussion. The veil has been rudely torn asunder; and though kings are but men, and every one must be sensible, that they are not free from the failings of humanity, still sound policy requires, that they should not appear before the publick in any other light than in their publick character; unless their virtues are such as to confer additional splendour on their throne. Happy would it be for us, if what passed in the last year could be obliterated from our annals; but how shall we keep from the eyes of our children the horrid trash, with which the press has been inundated? That the mischief may proceed no farther ought to be the ardent prayer of every lover of his country. Reason must resume the reins, instead of passion; and when calm reflection has produced its due effects, we may venture to predict, that my question may be answered in the affirmative—

THERE IS BALM IN GILEAD.

DESCRIPTION OF THE PLATE

REPRESENTING

THE APPARENT PATH OF CERES.

THE Engraving this year presented to the Reader is more minute in its detail than those of a similar description given in former Volumes. It comprises nearly all the stars to the seventh magnitude inclusive, one half of the number being invisible to the naked eye; but as Ceres is a telescopic planet, the propriety and even necessity of introducing minute stars is apparent.

The portion of the heavens represented in the plate comprises parts of the constellations Libra, Scorpius, Ophiuchus or Serpentarius, and Sagittarius; but these are so intermixed, that it would have been impossible to mark their boundaries without rendering the plate confused. To make the description complete, and to furnish various interesting particulars, which could not be given in an engraving, the following Ephemeris of the Planet and Catalogue of Stars is inserted. The latter has been drawn up with great care from the best modern catalogues, but not without a considerable deal of calculation*.

TABLE I,

Containing the Right Ascensions and Declinations of Ceres for 1821.

Days.	Rt. Asc.		South Declin.	
	°	′	°	′
January 1	227	18	10	23
9	230	14	11	8
17	233	0	11	49
25	235	36	12	25

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* It is much to be regretted, that a general Catalogue of Stars, somewhat after the plan exhibited in this *specimen*, has not been published in a portable form, and at a moderate price, for the use of students and amateurs. It is really a disgrace to British astronomers, that in order to prepare a concise list, such as is here presented, there should exist a necessity of consulting *half a dozen expensive volumes in folio and quarto*, the most important of which we owe to the labours of *foreigners*.

TABLE I, CONTINUED.

Days.	Rt. Asc.		South Declin.	
	°	′	°	′
February 1	237	47	12	52
9	240	3	13	18
17	242	8	13	40
25	243	57	13	59
March 1	244	44	14	5
9	246	7	14	18
17	247	8	14	28
25	247	46	14	34
April 1	248	1	14	37
9	247	50	14	41
17	247	14	14	44
25	246	12	14	46
May 1	245	13	14	48
9	243	36	14	51
17	241	50	14	56
25	239	56	15	2
June 1	238	22	15	11
9	236	37	15	23
17	235	11	15	37
25	234	5	15	56
July 1	233	27	16	13
9	233	4	16	40
17	233	3	17	10
25	233	23	17	44
August 1	234	1	18	14
9	235	2	18	52
17	236	22	19	31
25	237	57	20	12
September 1	239	39	20	48
9	241	46	21	28
17	244	5	22	8
25	246	35	22	47
October 1	248	34	23	15
9	251	23	23	49

TABLE I, CONTINUED.

Days.	Rt. Asc.		South Declin.	
	°	′	°	′
October 17	254	19	24	21
25	257	22	24	49
November 1	260	9	25	10
9	263	23	25	33
17	266	45	25	50
25	270	11	26	1
December 1	272	44	26	9
9	276	14	26	18
17	279	46	26	13
25	283	18	26	9
Jan. 1, 1822	286	24	26	2

PHENOMENA.

Jan. 18, conjunction with *Bode* 185 Libræ, star about 37′ south. Feb. 6, conjunction with *Bode* 64 Scorpii, star about 24′ south. March 1, Ceres passes almost close to *Bode* 22 Ophiuchi. May 22, opposition to the Sun; there will not be any conjunction this year. June 8, Ceres passes *Bode* 204 Libræ, star about 9′ south following. July 1, passes *Bode* 187 Libræ, star about 5′ south following. Aug. 14, passes λ Libræ, star about 22′ south preceding. Aug. 30, passes *ω* 2 Scorpii, star about 21′ north following. Sept. 30, passes 15 Ophiuchi, star about

24′ north following. Oct. 25, passes 32 Scorpii and ϑ Ophiuchi, the latter about 4′ north. Dec. 19, conjunction with σ Sagittarii, star about 18′ south. Dec. 30, conjunction with *Mayer* 769, star about 4′ south.

TABLE II,

Containing the Denominations, Magnitudes, and Positions of One Hundred and Eighteen Fixed Stars situate near the path of Ceres, calculated for July 1, 1821.

Name of Star.	Mag.	Rt. Asc.	S. Decl.	Lat.
		° ′	° ′	°
ν 1 Libræ	6	224 10	15 33	
ν 2 Libræ	6, 7	224 13	15 47	
ι 1 Libræ	5, 6	225 31	19 6	
ι 2 Libræ	6, 7	225 48	18 58	
26 Lib.	7	226 7	17 6	
β Libræ	2, 3	226 51	8 43	
ο 1 Libræ	7	227 46	14 54	
Lib. (*Anon.*)	8	227 58	14 31	
ο 2 Libræ	6	228 16	14 29	
Lib. *Mayer* 600	6, 7	228 30	11 43	6 N
ε Libræ	5, 6	228 38	9 40	
ζ 1 Libræ	6	229 33	16 5	
ζ 2 Libræ	7, 8	229 53	16 49	
ζ 3 Libræ	6	230 9	15 59	
Lib. *Mayer* 605	7, 8	230 22	19 33	1 S
Lib. ——— 606	7	230 36	19 3	0½ S
ζ 4 Libræ	5	230 43	16 14	
37 Lib.	5	231 6	9 27	

TABLE II, CONTINUED.

Name of Star.	Mag.	Rt. Asc.		S. Decl.		Lat.
		°	′	°	′	°
γ Libræ	4, 5	231	23	14	11	
Bode 174 Lib.	7	232	8	17	4	1¾ N
Lib. *Mayer* 614	8	232	8	13	55	4¾ N
41 Lib.	6	232	10	18	42	
Bode 182 Lib.	7	252	50	13	23	5¼ N
κ Libræ	5	252	55	19	5	
Lib. *Mayer* 617	6, 7	233	11	15	26	3¼ N
Bode 185 Lib.	7	235	19	12	28	6½ N
—— 186 —	7	233	23	10	22	8½ N
—— 187 —	7	233	27	16	18	2¾ N
η Libræ	4, 5	233	31	15	6	
Bode 190 Lib.	6	233	36	14	28	4¾ N
—— 191 —	7	233	58	16	23	2¾ N
—— 194 —	7	234	55	17	21	2 N
—— 195 —	6	235	25	13	35	6 N
λ Libræ	5	235	45	19	37	
ϑ Libræ	4, 5	235	55	16	12	
47 Lib.	7	236	11	18	51	
Bode 202 Lib.	6	236	34	13	52	6 N
—— 203 —	6	236	39	14	18	5½ N
—— 204 —	6	236	46	15	30	4¼ N
ψ Libræ	5	237	3	13	45	
δ Scorpii	3	237	27	22	6	
49 Lib.	5, 6	237	35	16	0	
Bode 47 Scorp.	7	237	55	22	7	1¾ S
—— 49 ——	7	238	11	19	20	1 N
—— 54 ——	7	238	42	18	2	2¼ N
β Scorpii	2	258	46	19	19	
Bode 59 Scorp.	7	239	5	21	22	0¾ S
ω 1 Scorpii	4, 5	239	6	20	11	
Bode 61 Scorp.	7	239	11	15	39	4¾ N
—— 62 ——	7	239	13	16	27	4 N
ω 2 Scorpii	4, 5	239	14	20	23	
Bode 64 Scorp.	7	239	17	15	35	6¾ N

TABLE II, CONTINUED.

Name of Star.	Mag.	Rt. Asc.		S. Decl.		Lat.
		°	′	°	′	°
11 Scorpii	6	239	26	12	15	
Bode 72 Scorp.	7	239	52	12	34	7¾ N
—— 73 ——	6	239	55	17	51	2¼ N
—— 74 ——	7	240	6	12	24	8 N
ν Scorpii.............. ..	4	240	24	18	59	
Bode 83 Scorp.	7	240	48	20	56	0¼ S
—— 84 ——	6	241	0	20	38	0¼ N
—— 88 ——	6	241	5	18	4	2¼ N
—— 91 ——	6	241	27	14	24	6½ N
—— 93 ——	6	241	38	19	39	1¼ N
—— 98 ——	6	242	14	14	26	6½ N
—— 99 ——	7	242	18	18	23	2¼ N
—— 101 ——	7	242	25	19	37	1½ N
Scorp. (*Anon.*)	8	242	31	19	41	1½ N
Bode 107 Scorp.........	6	243	9	16	35	4½ N
ψ Ophiuchi	5	243	25	19	37	
g Ophiuchi	5	243	43	23	2	
χ Ophiuchi	5	244	10	18	2	
Bode 20 Oph..	6	244	51	13	10	8¼ N
—— 22 ——...........	6	244	55	14	9	7¼ N
φ Ophiuchi	4, 5	245	14	16	13	
ω Ophiuchi	5	245	24	21	5	
Bode 30 Oph...........	7	245	37	15	35	6 N
—— 35 ——...........	7	246	41	13	21	8¼ N
Oph. *Mayer* 653.........	8	247	2	17	49	4 N
Oph. —— 654.........	7	247	31	20	3	1¼ N
Oph. —— 655.........	7, 8	247	44	17	44	4¼ N
24 Scorpii	5	247	49	17	23	
Oph. *Mayer* 657.........	7, 8	247	51	19	34	2¼ N
Oph. (*Anon.*)............	7	248	17	22	47	
15 Ophiuchi.............	7, 8	248	36	22	50	
Bode 141 Scorp.........	7	249	20	24	12	2 S
—— 57 Oph..	7	249	34	15	59	6 N

TABLE II, CONTINUED.

Name of Star.	Mag.	Rt. Asc.		S. Decl.		Lat.	
		°	′	°	′	°	
Oph. *Mayer* 661	8	250	10	16	14	6	N
Oph. —— 662	7	250	43	20	6	2¼	N
22 Oph.	6, 7	251	1	23	12		
24 Oph.	6, 7	251	31	22	51		
Oph. *Mayer* 665	7	251	39	19	15	3¼	N
Bode 92 Oph............	7	252	28	21	11		
29 Oph.....................	6	252	52	18	37		
31 Oph.	7, 8	253	16	25	26		
Oph. *Mayer* 671	7	253	33	20	14	2¼	N
28 Scorp..................	6	253	53	21	18		
Oph. *Mayer* 673	7, 8	253	58	26	16	3½	S
29 Scorp..................	6, 7	255	47	26	45		
a Ophiuchi..................	4, 5	256	6	26	20		
30 Scorp..................	7	256	19	26	17		
31 Scorp. or 38 Oph...	6, 7	256	39	26	25		
39 Oph.	6	256	47	24	5		
32 Scorp..................	7, 8	257	41	21	43		
ϑ Ophiuchi................	3, 4	257	46	24	49		
33 Scorp..................	7	258	33	24	4		
1 Sagittarii...............	6	260	10	26	7		
Sag. *Mayer* 698	7	264	19	26	54	3½	S
63 Oph.	6, 7	265	59	24	50		
Sag. *Lacaille* 1504......	5, 6	271	43	27	6		
λ Sagittarii................	4	274	14	25	30		
Sag. *Mayer* 727	7, 8	274	35	25	21	2	S
Sag. *Lacaille* 1542	6, 7	278	27	25	12		
φ Sagittarii................	4, 5	278	37	27	10		
σ Sagittarii	3	281	3	26	30		
Sag. *Mayer* 759.........	7	283	9	25	5	2¼	S
Sag. —— 764.........	7, 8	284	20	24	55	2	S
Sag. —— 769.........	6, 7	285	33	26	12	3½	S
ψ Sagittarii	6	286	9	25	53		
Sag. *Mayer* 771	7	286	10	24	28	1¼	S

REMARKS.

ν 1 Libræ. The catalogues of the last century have this star of the 5th magnitude.

ι 1 Libræ. A double star, N° 44 of Sir W. Herschel's sixth class. Distance of the stars 59″.1; very unequal in magnitude. The star is called of between the 3d and 4th magnitude in the catalogues of the last century.

Anonymous. R. A. 227° 58′. Herschel describes a double star between ο 1 and ο 2, the nearest of two stars to ο 2. Class v, N° 132, distance 40″. As there is but this one star in Lalande's Histoire Celeste, it is doubtful whether it be Herschel's double star or not.

Mayer 600. This is marked doubtful in right ascension in Mayer's Catalogue. Probably it should be one minute greater. See Hist. Celeste, page 467.

ε Libræ. The catalogues of the last century make this star of the 4th magnitude. Piazzi, 5, 6.

ζ 2 Libræ. The declination of this star is too little by 10′ in Flamsteed's Catalogue, which is right in Mayer, N° 603.

37 Libræ. The Britannic Catalogue has this

star of the 6th magnitude: Lalande *5, 6*; Bode *5*; Piazzi 4.

ζ 4 Libræ. The catalogues of the last century call this star of the 4th magnitude; Bode *5*; Piazzi 6. The right ascension in Bode appears one minute too great.

κ Libræ, λ Libræ. The catalogues of the last century make these stars of the 4th magnitude.

47 Libræ. Mayer's Catalogue N° 625 is the same star as this; but the right ascension is too great by 7½′. The latitude in the Britannic Catalogue is also too little by 50′.

49 Libræ. Has a sensible proper motion, the amount of which is not exactly ascertained, but the effect of it is to produce a diminution in the right ascension, probably not less than one minute in a century, and an increase in the declination, not less than 40″.

β Scorpii. A double star (Herschel iii, 7), distance 14″.4; very unequal; larger star whitish red, smaller star red.

ω 1 and 2 Scorpii. Both these stars are of the 5th magnitude in the catalogues of the last century.

ν Scorpii. A double star (Herschel v, 6);

two stars very unequal; smallest is of 8th magnitude, according to Mayer; distance 38″.3; both white.

Bode 101 Scorpii. A double star (Herschel v, 134); equal; distance 45″.8.

Anonymous, R. A. 242° 31′. A double star, very near the former (Herschel iv, 124); a little unequal; distance 15″.4.

g Ophiuchi. A double star (Herschel ii, 19); requires a powerful telescope. The author thinks Wollaston is not correct in saying, that this star properly belongs to Scorpius.

ω Ophiuchi. The longitude of this star in Bradley's Catalogue (Nautical Almanack, 1773) is too little by 20′.

24 Scorpii. This star is sometimes distinguished by the letter m. It belongs properly to Ophiuchus, as well as N° 28, 29, 30, 31, 32, and 33 of the Britannic Catalogue.

15 Ophiuchi. The right ascension in Flamsteed is too great by 15′, consequently the longitude and latitude are both erroneous.

24 Ophiuchi. The declination in Flamsteed is too great by 10′, which is right in Mayer, N° 664.

Mayer 665, or *Bode* 92 Ophiuchi. One of these two stars is double, according to Lalande, Hist. Celeste, p. 344. The latter star is not in the plate.

Anonymous, R. A. 248° 17′. This is a star observed by Piazzi, which is neither in Bode's folio catalogue, nor in the plate.

31 Ophiuchi. The right ascension in Flamsteed is too little by 15′, which is right in Mayer, N° 670.

a Ophiuchi and 30 Scorpii. These form a most remarkable double star, their distance (12′ 10″) being so considerable, that their connection would not be suspected, were it not that they have a very considerable proper motion, common to both; so that, although they change their situations with regard to the other stars, they preserve the same distance from each other. By a comparison of the observations of Mayer, Bradley, and Piazzi, it appears, that the proper motion of these stars in one hundred years is 1′ 54″ of a great circle, the right ascension being diminished, and the declination increased.

31 Scorpii, or 38 Ophiuchi. This is the same star inserted in the Britannic Catalogue under two constellations: it belongs properly to the latter. With a very powerful telescope appears double.

39 Ophiuchi. A double star (Herschel iii, 25); stars very unequal; largest, white; smallest, bluish; distance 10″.

32 Scorpii. The right ascension in Flamsteed is too great by 1′; and the declination in Mayer, N° 681, too great by 3½′.

ϑ Ophiuchi. So this star has been denominated ever since the time of Flamsteed; but Bode, in his catalogue, uses the character π, agreeably to Bayer, as he alleges.

1 Sagittarii. There is no star existing in the heavens in the place where the Britannic Catalogue points out 1 Sagittarii. The star, whose position is here indicated, is described by Bode (in his quarto catalogue, deduced from Piazzi) as in Ophiuchus. Lalande, Hist. Celeste, p. 567, gives it the same name as is here employed.

Lacaille 1504, is not in the plate, neither is N° 1542 of the same author.

φ Sagittarii. The catalogues differ considerably in brightness. Bode says the star was of the 4th magnitude in 1801.

σ Sagittarii. This star is strongly suspected to be variable. It is set down as of the 3d magnitude in the catalogues of the last century, and in that of Piazzi. Bode says it was of the 2d in 1801. The unfavourableness of the position has prevented any regular series of observations on its brightness.

It will be observed, that the places of the planet and stars are given in right ascension and declination, though the plate was delineated by means of the corresponding positions in longitude and latitude. Each method has its advantages over the other; and it may form an agreeable exercise for young persons to delineate the path of Ceres among the fixed stars, by using Tables I, II, and III, on a scale twice or thrice as large as that of the plate. The variations, that will be discovered between their own drawings and the plate, will probably give rise to some ideas respecting the two constructions, that may prove highly useful on other occasions. It may be proper to remark, that the latitudes inserted in the last column of the Catalogue are merely intended to facilitate reference to the plate.